

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

The First Aerial Prosecution.

In entering a prosecution against M. Brindejone des Moulinais, for contravening the Aerial Navigation Acts by failing to send notice to the Home Office that he proposed to fly overseas to this country, and for flying over prohibited areas, the authorities only did what they are compelled in law to do. We can fully understand that their view is that it is no use passing laws and making Orders under the Acts applying to the navigation of the air above these islands unless proper steps are taken to enforce them. As it happened, the offence committed by M. des Moulinais was harmless enough in itself, but it nevertheless constituted a breach of the Acts, and for the sake of demonstrating that these laws are not made for the pure moral effect of the thing it was quite necessary that action of some sort should be taken.

The coming of the aeroplane has set up an entirely new condition of things. Even to-day, when aircraft have still very far to go before they can be said to have even approached perfection, it is hardly going too far to say that they have eliminated frontiers as we have understood the term hitherto, and have thus rendered the problem of guarding the marches vastly more complex than it has been. So long as an arrival contents himself with coming by *terra firma* it is easy enough to deal with him, but when

he elects to come by the air it is a different matter altogether. In the one case he can be stopped, and, if necessary, sent back to whence he came. Customs formalities are easy enough in their incidence, and the vigilance of the authorities can generally be trusted to see that the laws of the realm, regarding the entry of people who might conceivably be objectionable shall be carried out reasonably well. It is far otherwise, however, where the arrival by air is concerned. Short of bringing down the aviator by means of a gun, there is no possible method of restricting his entry into any country, and the only possible thing that can be done is to deal with him after his landing. It is absolutely essential, therefore, that there should be laws governing the entry by air, and, further, that these laws should be strictly administered. There cannot be any slackness in their administration, either, else they would rapidly become a dead letter. To the average person it seems, perhaps, a little hard that an aviator who has made a magnificent flight—as M. Brindejone des Moulinais indeed had done—should receive the cold welcome of a summons to appear before a court of justice; but for ourselves we can see no other way out. It is all very well to view the matter with the romantic eye, but this will not do beyond a certain point. We cannot allow our appreciation of pluck and skill to obscure the necessities of the case.

Though we are entirely at one with the authorities in bringing this case and thus drawing early attention to the state of the law, we are still more in accord with them in the lenient view they took of it. A warning of what will happen if the law is persistently disregarded was all that was needful, and it pleases us much that this was exactly the view taken by the authorities concerned. In his speech for the prosecution Mr. Muskett was singularly happy in the manner he outlined the case. Even more happy was the magistrate, Mr. Dickinson, in binding over M. des Moulinais to come up for judgment if called upon. We were, he said, glad to welcome a brave and clever airman. On the other hand, the regulations that had been made for the safety and defence of the realm must be observed. Those regulations had only been in force for a short time and he could quite believe that M. des Moulinais had not had an opportunity of studying them. In those circumstances the Government were only too glad to make an exception in his case, but it would be absolutely necessary to observe these rules in future. With all of which we are in the most entire agreement.

Wilbur Wright Memorial Lecture.

It is very fitting that the work of one who did so much for flight as Wilbur Wright should be annually commemorated in this country in a manner that is not only appropriate to the occasion, but calculated to transmit something of the pioneer's own interest in the subject to later workers in the same field.

It was a happy thought of Mr. T. W. K. Clarke, himself an early enthusiast, to suggest to the Council of the Aeronautical Society that they should organise an annual Premium lecture to serve the purpose of such a memorial.

Nothing could possibly have been better suited to the requirements of the case, for a scientific lecture is not only an appropriate memento for Wilbur Wright's work, but it can be made to have an ever green interest of its own that is well calculated to inspire the proper sort of interest in aeronautical work.

While Wilbur Wright and his brother Orville stand out most prominently in the world at large as out-door experimenters who first developed the glider into a successful power-driven aeroplane, it must not be forgotten that the Wrights spent as much, if not more, time in their laboratory. The detail of the work so accomplished has for the most part never been published, but it is no secret that there is a considerable accumulation of data in the possession of Orville Wright, and we hope that some day he may be able to find time to put it into form for the Press.

The first Memorial Lecture was delivered by Mr. Horace Darwin, F.R.S., who took for his subject "Scientific Instruments, their design and use in Aeronautics." Just at the present time it would be difficult to choose any subject of more direct interest to the manufacturer of aeroplanes, for the time has come when everyone feels the need for the use of reliable instruments in order that something more nearly approaching fact may be substituted for personal opinion as a basis of progressive design.

The engineer in the aeroplane industry is very much at the mercy of a variety of factors entirely outside his own control. We even know of cases in which machines have been condemned by some pilots as unflyable, and subsequently without alteration have been shown to be most successful types when they came into the charge of other hands. Such a state of things is extreme, of course, but it emphasises the degree to which the personal equation in practical experiment may vitiate results.

It stands to reason that instruments must be properly designed and constructed to be of any use whatever, and there is probably no more difficult aspect of the problem of scientific instrument design than that presented by their construction for use in the air. Of all people who have

studied the subject there is probably none who has given it greater thought than Mr. Horace Darwin, who is a member of the Advisory Committee for Aeronautics, and is also at the head of that unique enterprise, the Cambridge Scientific Instrument Co.

His audience on Wednesday evening of this week included many distinguished guests, for among those who had accepted invitations to be present were Lt.-Col. G. O. Squier, Military attaché to the American Embassy, whose splendid paper on "The Status of Military Aeronautics" will still be remembered by readers of the first volume of FLIGHT; Major-Gen. von Donop, Master General of the Ordnance, who, technically speaking, is responsible for the buying of the aeroplanes required by the Army; Dr. R. T. Glazebrook, C.B., Director of the National Physical Laboratory and Chairman of the Advisory Committee that directs the official experimental research.

Although held under the aegis of the Aeronautical Society, the Wilbur Wright Memorial Lecture has a national status, for not only have several public men like Mr. A. J. Balfour and Lord Northcliffe expressed their approval of its object by subscribing to the fund, but the Royal Aero Club has also similarly identified itself with the movement, and Mr. Roger W. Wallace, K.C., a Vice-President of the Club, was among the Council's guests on this occasion.

The work of Wilbur Wright is too well known and too fresh in the memories of all to need recapitulation, but we should like to draw attention to the fact that the present year is the tenth anniversary of the real conquest of the air by aeroplane, and we hope it may be marked in due course by some special display.

It was on December 17th, 1903, that Wilbur Wright and his brother Orville made four free flights rising from level ground against the wind. It was in the *Automotor Journal*, the parent journal of FLIGHT, of December 26th, 1903, that particulars of this great feat appeared, it being the first account ever published, in an English newspaper, of human flight. The machine with which this was accomplished was one built specially to take their engines, which they also designed and constructed in their own workshop. The aeroplane was built on the same lines as their latest glider, which they had evolved through three years' patient experimental work.

Theirs was a triumphant record of systematic progress, for they attempted no new experiment without a reason, and passed through no new experience without investigating its cause. By the end of 1905 they had made several flights exceeding 20 miles in length and half an hour in duration. So far ahead of other men in this new art were they, that it was more than two years before anyone else flew a circular course of even five-eighths of a mile.



Aerial Escorts for the King and Queen.

BOTH at the beginning and end of their journey to Berlin this week, their Majesties the King and Queen had the somewhat novel experience of an aerial escort. As the Royal yacht steamed out of Port Victoria, Sub-Lieut. J. T. Babington, R.N., on one of the famous Short hydro-aeroplanes of the H1 type, which have done such splendid service for the British Navy, started from the Naval air station at the Isle of Grain, and followed the "Victoria and Albert" on its way across the North Sea, until, when at a point about 18 miles off Margate, the machine was steered round the Royal yacht and then returned back to its headquarters. Lieut. J. W. Seddon, R.N., who is in charge of the Isle of Grain air



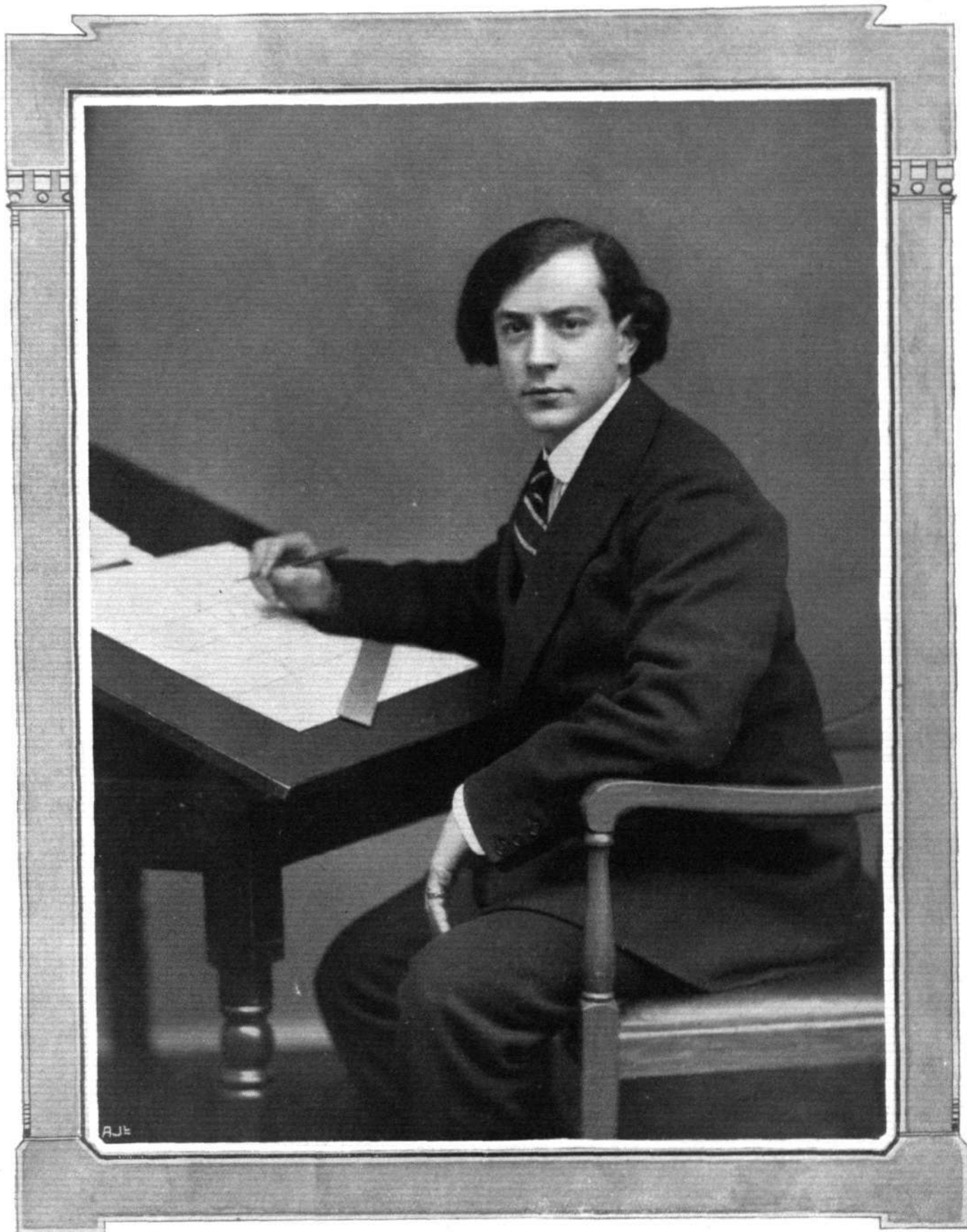
station, also piloted the Borel machine, recently purchased by the Admiralty, alongside the Royal yacht for some distance.

On their arrival in Berlin their Majesties were met by the Zeppelin passenger airship "Hansa," which has for some time been stationed at Potsdam, carrying on a regular service of daily trips in the neighbourhood of the German capital. It hovered over the Lehrter Station until the Royal procession started for the Royal Palace, and it then followed its progress along the Unter den Linden, carrying out a series of evolutions as their Majesties passed through the Bradenburg Gate, and it was also manœuvred about for some time in the vicinity of the Palace.

MAY 24, 1913.

FLIGHT

MEN OF MOMENT IN THE WORLD OF FLIGHT. Designer.



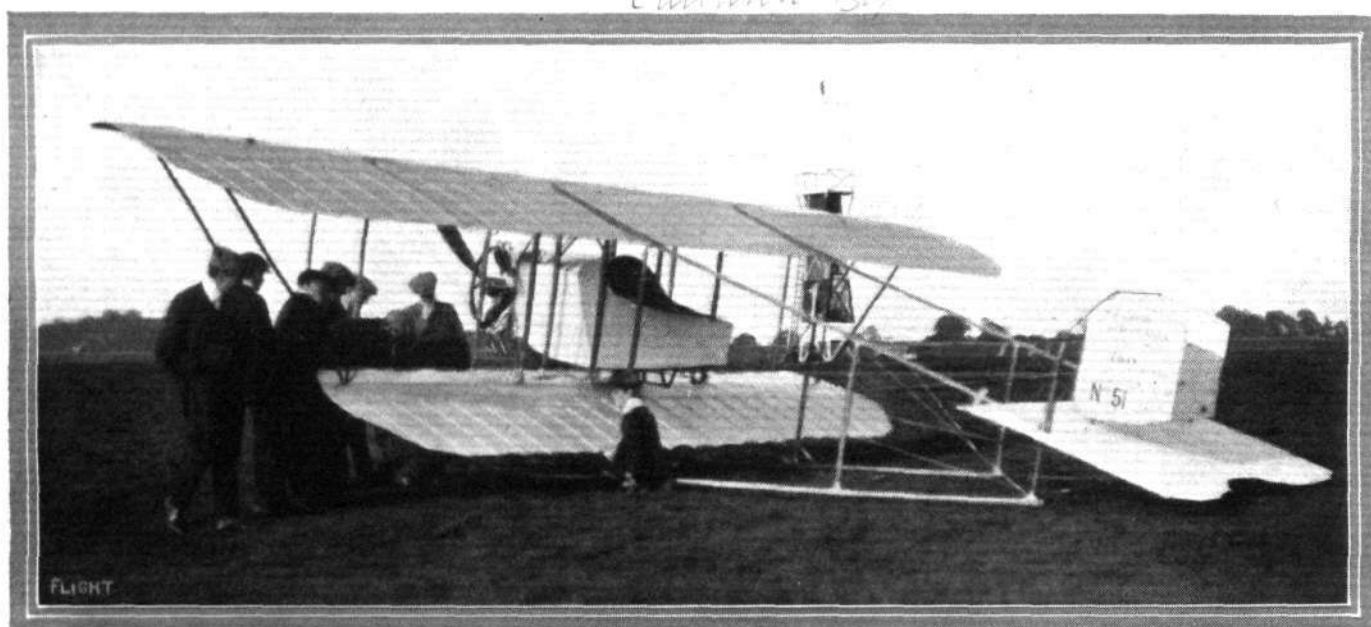
M. COANDA, Technical Director of the British and Colonial Aeroplane Co.

SUMMER MEETING, HENDON.

APPROPRIATELY enough, last Saturday's "Summer" meeting at Hendon was held under summer conditions—or, at least, a very fair representation of them. But for a light wind blowing, King Sol would have made himself felt enough to bring back memories of the dog days. The "gate"—taking advantage of these conditions, and encouraged by the promise of a busy programme—turned up in their thousands (the official figure given was 20,000). The proceedings, shortly after the firing of the commencing bombs, went off with a splendid spurt, all the pilots bringing out their machines for preliminary flights one after the other. Louis Noel, on the Grahame-White Maurice Farman biplane, got away with several passengers, Pierre Verrier being out on a similar machine. Lewis Turner piloted the 60-h.p. Caudron biplane, J. L. Hall made a short flight on his Blériot monoplane, and Sydney Pickles flew the Handley-Page monoplane, having returned that morning to Hendon from Winchester, where he had been giving exhibition flights on the same machine. Whilst Hall and Pickles were up, three other pilots ascended—Verrier on the Maurice Farman, Jules Nardini on his 50-h.p. Gnome-Deperdussin monoplane, and Brindejonc des Moulinais on the fast Morane-Saulnier monoplane. After this more passengers were taken up by Verrier, and Gustav Hamel gave an exhibition flight on his Blériot monoplane. Then the machines lined up for the cross-country handicap; but, just before this event started,

machines could be seen bound for home in a bunch, and it was difficult at first to name the leader. It was Slack who crossed the line first, followed by Turner and Nardini, with 3 secs. between them, Verrier and Noel, after an interval of 15 secs., following, the latter having lost a few seconds in getting off at the start, was not able to overtake his rival. A badly-running engine caused the Handley Page monoplane to come in last. In the meanwhile, Lieut. L'Estrange Malone, R.N., made a fine high flight on the Admiralty 80-h.p. Gnome-Caudron biplane, and des Moulinais was seen returning from his trip to the stars. He landed at 5.5 p.m., having been aloft for 55 mins. The two barographs that he carried registered an average height of 10,200 ft., which, although not beating de Havilland's record, tops that of Salmet's for Hendon. After a rest of a few minutes he made another short trip, and a little later on Hamel was seen returning, having been away for about half an hour.

The Grand Speed Handicap was then flown; this was held in two heats of six laps and a final of eight laps. Three started in the first heat: L. Turner, on the 60-h.p. Caudron biplane, with 1 min. 40 secs. start; P. Verrier, on the Maurice Farman biplane, 40 secs. start; and J. Nardini, on the 50-h.p. Dep., was at scratch. For the first two laps they kept in the order in which they started, but during the third lap Verrier obtained first place, only to lose it



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THE 45-H.P. CAUDRON BIPLANE.—Three-quarter back view of the new British built Caudron biplane, which the W. H. Ewen Aviation Co., Ltd., have sold to the War Office. The machine has been constructed for Mr. Ewen by Messrs. Hewlett and Blondeau at their Clapham works. The workmanship is extremely good and the machine is very neatly finished. A new type of cowling has been fitted, and several improvements have been effected in the 45-h.p. Anzani engine. The auxiliary exhaust ports have been done away with and a new form of exhaust pipe fitted. The result is that the engine may now be throttled down to run very slowly indeed. Another advantage is that all the oil thrown off by the engine passes through the exhaust pipes and is carried away underneath the body.

des Moulinais, accompanied by a lady passenger, set out on his attempt to beat the British height record with a passenger—held by G. de Havilland, with a height of 10,500 ft., Salisbury Plain, August, 1912. In a remarkably short space of time he was a mere speck in the sky, and a little later he was lost sight of altogether. Immediately after des Moulinais ascended, Hamel got in the air again on his Blériot for a cross-country trip to Brooklands.

The cross-country handicap, which then started, was one of the prettiest seen at Hendon. Six machines started, and kept close together the whole time. The course was to Elstree and back twice, a distance of about 18 miles, and the starters were:—L. Turner, 60-h.p. Caudron biplane (4 mins. 31 secs. start); Sydney Pickles, Handley-Page monoplane (2 mins. 20 secs. start); L. Noel and P. Verrier, both on 70-h.p. Maurice Farman biplanes (2 mins. 15 secs. start); R. Slack, 50-h.p. Blériot monoplane (1 min. 55 secs. start); and J. Nardini, 50-h.p. Deperdussin monoplane (scratch). Turner was leading at the end of the first lap, Verrier and Slack coming in close together shortly after, then followed Noel with Sydney Pickles close behind; Nardini was last, although overhauling the others rapidly. The finish was most exciting, for all the

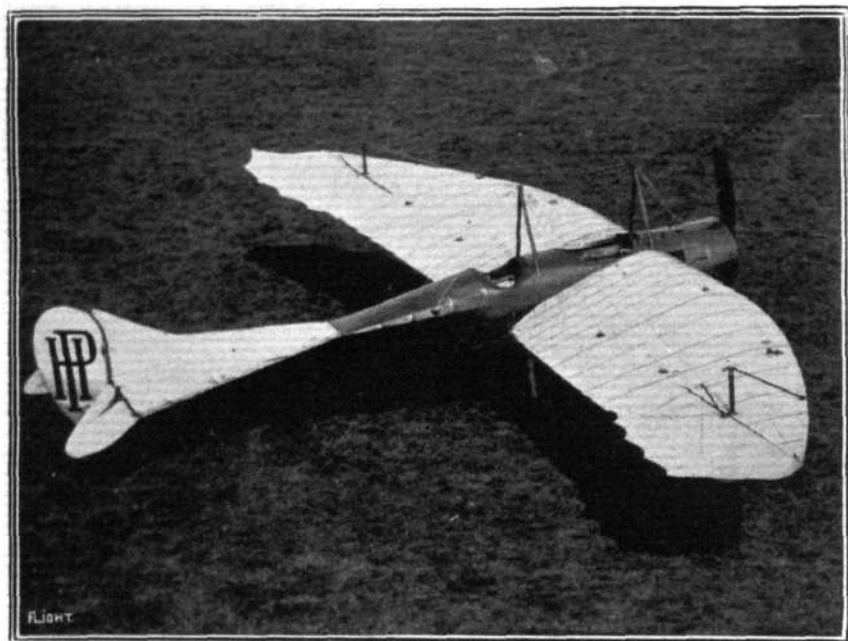
to Nardini on the fourth lap. Nardini, therefore, was first, Verrier second (22 secs. behind), and Turner third, 20 secs. after the latter. The limit man in the second heat was E. Whitehouse, on the Handley Page monoplane, receiving 49 secs. from scratch—Slack, on the Blériot monoplane—while Noel, on the Maurice Farman, got 22 secs. Whitehouse flew high and wide, and so lost "air," Noel catching him up at the end of the third lap. Noel kept the lead throughout the rest of the race, and came in first, 6 secs. ahead of Slack, who had passed Whitehouse on the fifth lap. By this time the wind had increased somewhat in strength, and when the start for the final was made it had risen to about 40 m.p.h. The start for this last race was quite exciting, for Noel and Verrier, on their Maurice Farman, were off within a few seconds of one another, the latter having a rough time of it in the former's backwash. Slack followed close upon Verrier, and Nardini last. The latter was just about to rise from the ground when a strong gust of wind struck the monoplane, causing it to swerve sharply to the right. Nardini pulled up just a few feet in front of the enclosure, much to the amusement of those sitting behind, who took it quite calmly, and apparently thought it part of the show. At about the same

Hendon 1913 Box



Brindejonc des Moulinais and his lady passenger on the Morane-Saulnier just starting for his attempt to beat the English altitude record at Hendon on Saturday last

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A bird's-eye view of the new Handley Page monoplane, showing the ailerons now used in place of wing warping.

time des Moulinais, who had been for another flight, landed, after having just managed to pass in front of the racing machines (finishing their first lap), and missing the heads of those standing round No. 1 pylon, with none too much to spare. Noel kept ahead for two laps, after which Verrier obtained first place, which he retained until the finish. Slack, who had been blown out over the sheds, retired at the sixth lap, leaving Verrier and Noel to fight it out by themselves. The result and times of the final are given below. Another flight by des Moulinais and one by Verrier brought the proceedings of the day to a close. The next day, Sunday, was too windy for very much flying, but Noel and Verrier were out on their Maurice Farman biplanes, and a friendly race was flown between Sydney Pickles, on the 60-h.p. Caudron biplane, and R. Slack on the Blériot monoplane. Pickles crossed the line 3 secs. ahead of his rival.

Cross-Country Handicap.

Distance, 19 miles.

	Start.	Handicap	Net
	time.	time.	time.
	M. S.	M. S.	M. S.
R. Slack (50-h.p. Blériot monoplane) ...	1 55	23 27	21 2
L. Turner (60 h.p. Caudron biplane) ...	4 20	23 51	23 51
J. Nardini (50-h.p. Deperdussin monoplane) scr.		23 53	19 53
P. Verrier (70-h.p. M. Farman biplane) ...	2 15	24 15	22 10
L. Noel (70-h.p. M. Farman biplane) ...	2 15	24 30	22 25
S. Pickles (50-h.p. HandleyPage monoplane) 2 00		24 59	22 59

Final of Speed Handicap.—8 laps—12 miles.

P. Verrier (70-h.p. M. Farman biplane) ...	1 20	15 15	15 7
L. Noel (70-h.p. M. Farman biplane) ...	1 28	16 00	16 00
R. Slack (50-h.p. Blériot monoplane) ...	1 10	retired.	
J. Nardini (50-h.p. Deperdussin monoplane) scr.			

HENDON NOTES.

EMPIRE Day Meeting at Hendon is down for this (Saturday) afternoon, when two events will be decided—a speed handicap, the entrant of the winning machine of which will receive the Imperial Cup, presented by Mr. J. E. Withers, and an altitude contest, for which a trophy has been presented by the Grahame-White Aviation Co.

Some new and interesting machines are in course of construction at the G.-W. works, so it looks as if we shall soon see a variety of aeroplanes in use. I have heard it rumoured that they are to have a Morane-Saulnier monoplane—similar to that flown last week by Brindejonc des Moulinais—in commission very shortly.

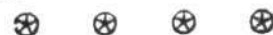
The new Grahame-White Maurice Farman biplane is getting on famously in the hands of its new pilots. Both Grahame-White and Louis Noel handled the 'bus in a masterly fashion the first time out—but, of course, "G.-W." can fly anything that *can* fly, whilst Noel is an experienced pilot of the Henry Farman machines. Noel told me that the Maurice Farman biplane is a most delightful 'bus to pilot. Some exciting times up at Hendon may be looked for now that two pilots such as Noel and Verrier have become friendly rivals on similar machines.

Marcus D. Manton has been doing some very good flying lately on the 35-h.p. Anzani-Blériot. Given a machine with

a decent reserve of power, he should get speedily into the front rank of monoplane pilots. He has been busy in other directions, however, for he has, with the assistance of some companions of the air, fitted up a wireless station at his "digs." When this is completed, and the necessary licence obtained, some interesting and amusing "tappings" may result during "off hours."

There is no doubt that those connected with aviation matters—pilots, mechanics, &c.—up at Hendon (and elsewhere, for that matter) have a pretty full time, one way and another. A little relaxation, therefore, is at times not inadvisable. Opportunity in this direction has served well recently, as in addition to the pleasant afternoon spent at the Palace Theatre recently, quite an entertaining evening was spent just before, thanks to the forethought of Capt. Tyrer, and to the kindness of Mr. Horace Goldin. On the evening in question, a party of the principal pilots and mechanics of Hendon paid a visit to the Kilburn Empire. Here they witnessed an excellent programme, including Horace Goldin's mystifying illusions. After the regular programme had been disposed of, the visitors were entertained on the stage by Mr. Goldin, and were there introduced to the tiger, which plays an important part in one of the illusions. Robert Slack and Capt. Tyrer were especially privileged. They indulged in what they say was the most exciting time of their lives, when they, in each other's company, interviewed the wild beast in his cage. It was the time of their lives, and altogether a most enjoyable evening was spent.

VEE JAY.



THE DYOTT MONOPLANE.

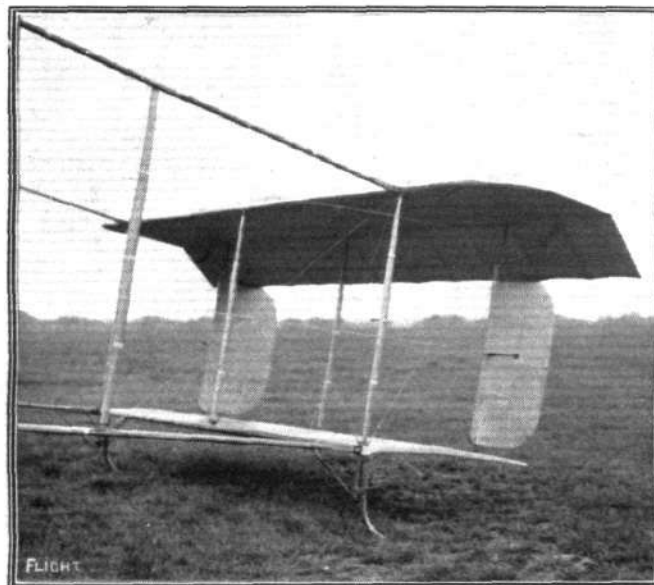
FROM Mr. G. M. Dyott, writing from New York on the 9th, comes some interesting news regarding this new machine, which was illustrated in FLIGHT on April 26th. He writes as follows: "The performance of my machine has surprised everyone, and its construction meets with universal admiration.

"She goes like a rocket, 75 miles an hour, with a 50-h.p. Gnome. The minute the tail is let go it leaves the ground at once, and the whole machine shoots forward at a tremendous speed; at 40 yards she is off the ground and climbing fast, with tail well up, not dragging at all, which is the ideal.

"Of course, the quick starting was one of the main objects of the design, but even I am surprised at her speed, and the way she hops off the ground at 40 yards.

"The machine handles well, and it is a joy to sit in the seat as comfortably as in an armchair, with not a breath of wind in one's eyes, at a speed of 75 miles.

"The field of vision is very fine, and at the same time the pilot can sit down inside if he likes, and neither see nor be seen. Every one at the Field is talking about it; so, on the whole, I am very pleased."



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The new tail of the Maurice Farman biplane.

THE LATEST MORANE-SAULNIER MONOPLANE.

THE machine with which M. Brindejone des Moulinais arrived at Hendon on Whit-Sunday from the Continent is quite one of the most interesting that has visited the aerodrome for a long time, and it is all the more

save by illustration, and even sketches and photographs are often an indifferent substitute for an actual inspection.

To some extent the clean appearance of the machine is emphasised by the compactness of its size, for it is far



THE 80-H.P. MORANE-SAULNIER MONOPLANE.—A three-quarter view from the front.

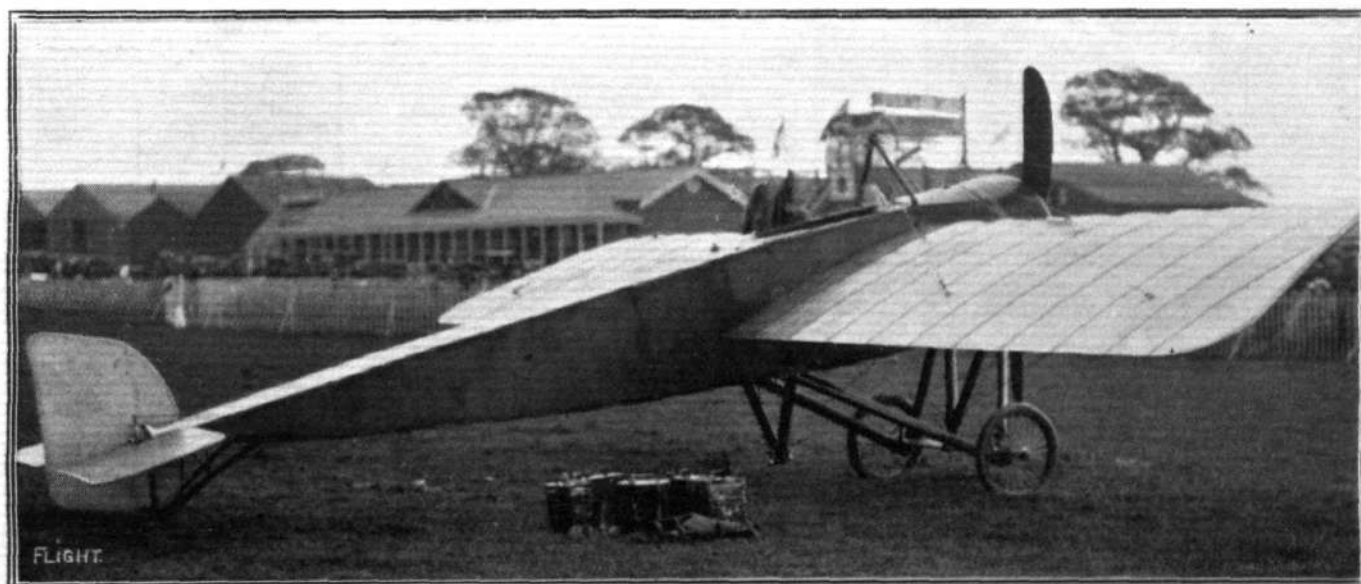
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interesting to know that Messrs. Grahame-White are arranging to construct duplicates in England in their capacity of sole concessionaires for Britain.

In the hands of such an expert pilot, it formed a centre of attraction during the Whitsuntide meeting, and its flying was certainly something out of the ordinary, and exceedingly well worth watching. But, it was not only in the air that this machine interested those who had an

from being a large monoplane. The span is only 30 ft., and the overall length is considerably less. The supporting area is about 160 sq. ft., and the weight of the machine empty is about 680 lbs.

The most striking feature of its design is the undercarriage. Viewed from the side, it is a simple V. Viewed from in front, it represents the letter M. To the inverted apex of the central triangle the divided axle is hinged,



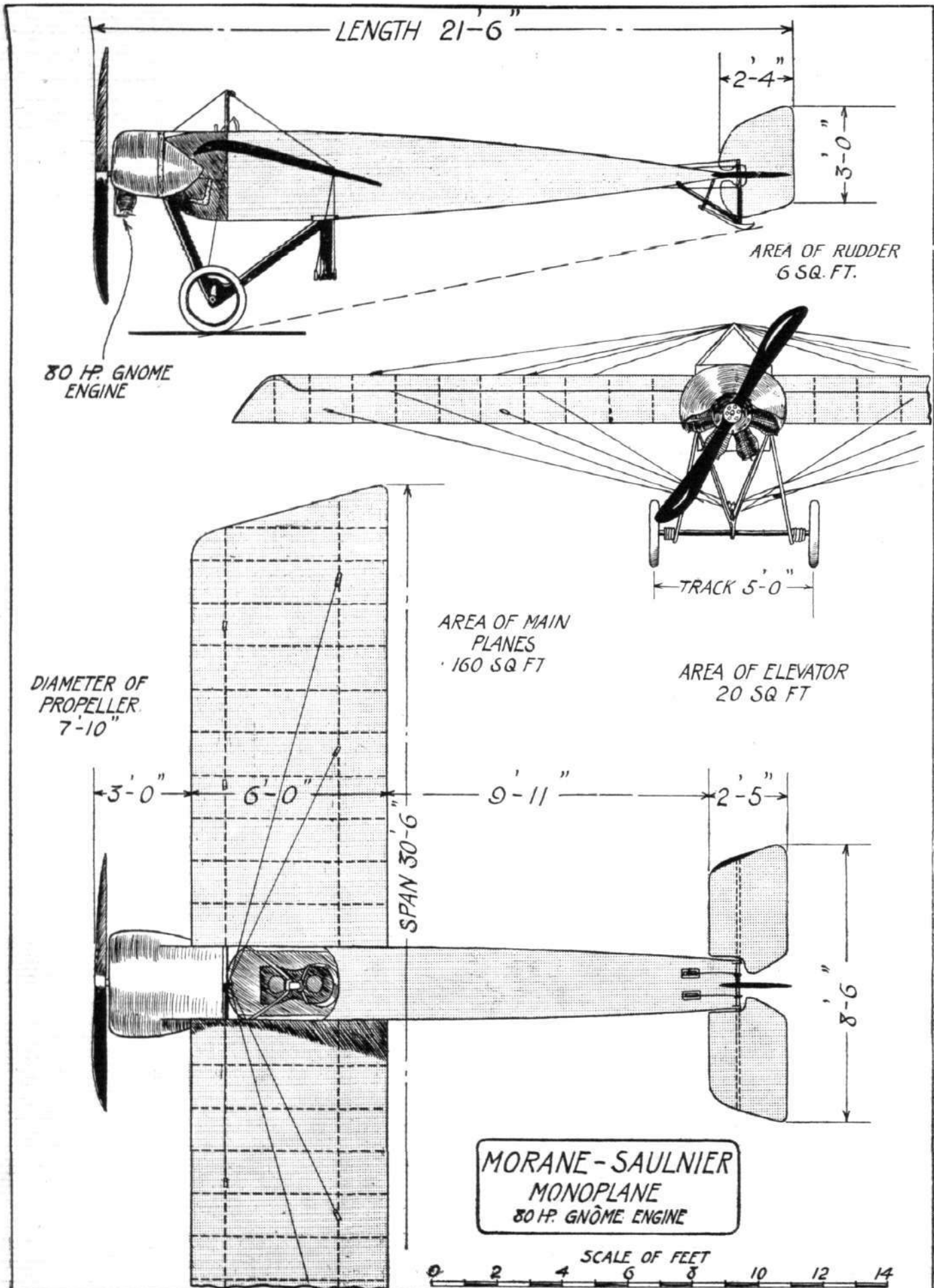
THE 80-H.P. MORANE-SAULNIER MONOPLANE.—A three-quarter view from the back.

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opportunity of seeing it on the ground at close quarters, for its structural detail was full of originality.

This Morane-Saulnier monoplane is, in fact, one of the neatest designs we have seen, but it is impossible to convey an adequate impression of its meritorious points

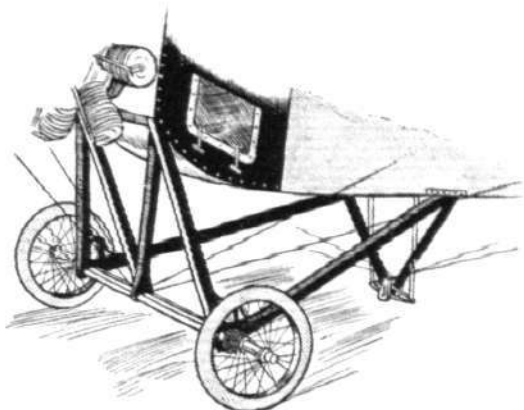
and the extremities of the axle are free to rise and fall in slots provided in the lower extremities of the outside limbs of this chassis structure. Rubber shock absorbers are fitted. The entire structure is made of flattened tubular steel work, with braced joints.



THE 80-H.P. MORANE-SAULNIER MONOPLANE.—Plan and side and front elevation to scale.

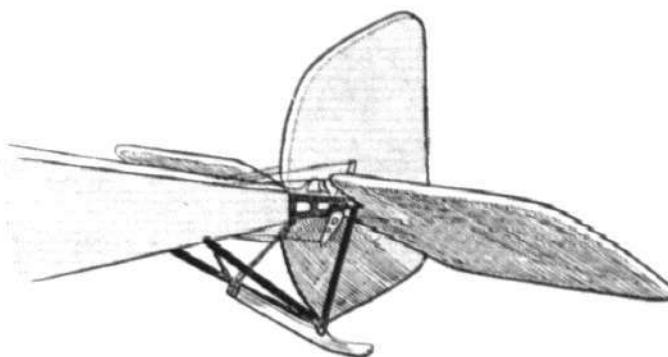
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Another neat feature is the method in which the main stay wires to the wing spars are carried down to the point of the central V and terminate in adjustment bolts. This also forms the subject of one of our sketches.



dismantling the wings for transport, the cabane itself folds down very neatly against the body.

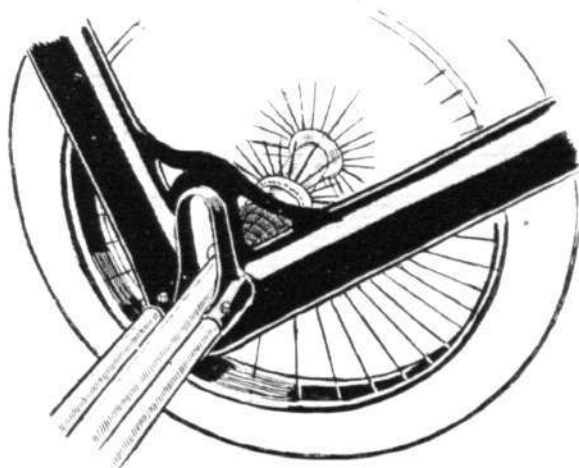
The cockpit is roomy, but the seating accommodation is peculiar, for the passenger sits quite close up to the pilot



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The extremely simple landing chassis of the Morane-Saulnier monoplane. On the right, sketch of the tail planes.

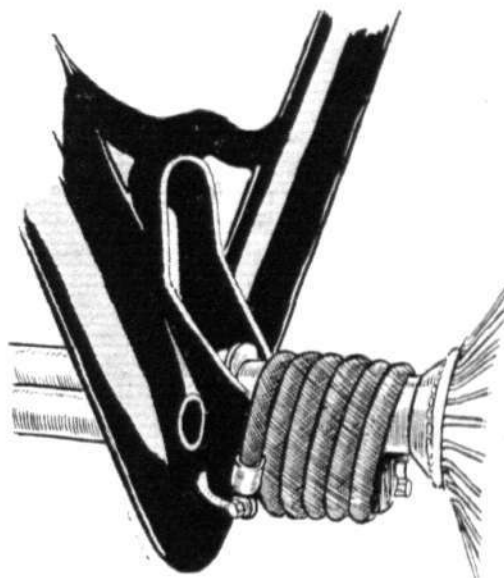
The upper pylon is as neat in its conception and execution as the undercarriage, for it is a simple A hinged at its two feet to the sides of the body and stayed by a wire cable passing over a pulley, against the pull of



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Detail of Chassis.

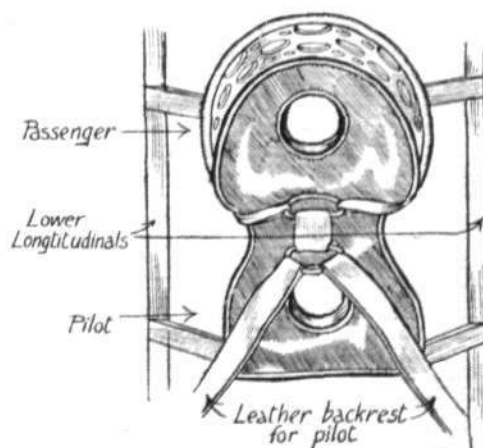
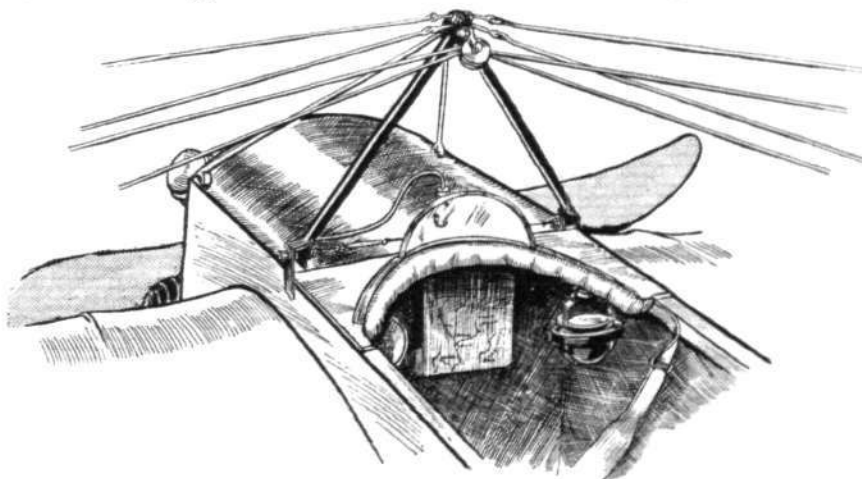
the warp wires which pass over a corresponding pulley on the other side. It is, in fact, a simple strut in a system of wire bracing, and when the wires are removed by



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Sketch showing the very neat attachment of the shock absorbers to chassis members.

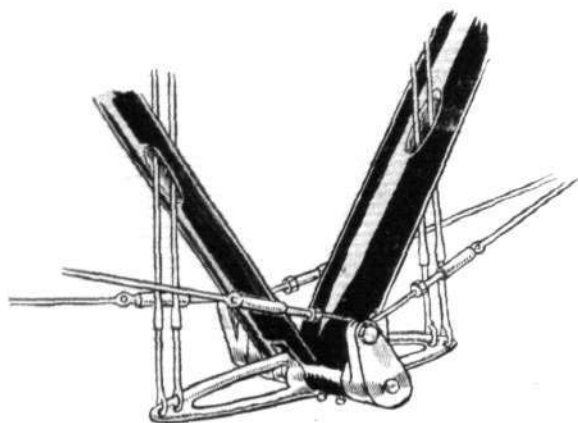
and has, in fact, to spread his legs in order that the pilot may sit down at all. The control is of the simple vertical lever type in which a to-and-fro movement



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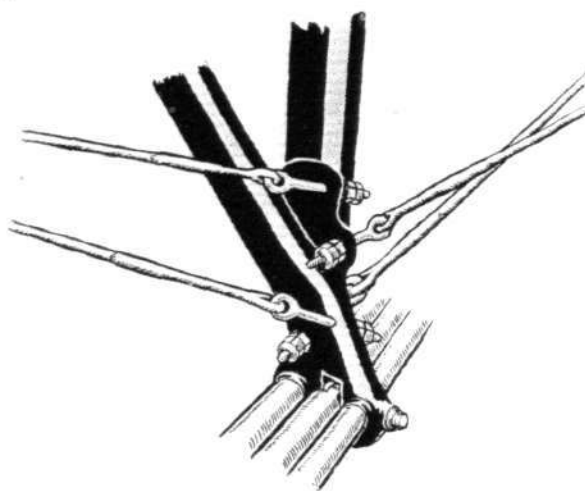
The cockpit and dash. Note the method of pivoting the top pylon to upper longerons. On the right the rather unusual seating arrangement.

operates the elevator, while a sideways motion controls the warp. The lever itself is attached to a rock shaft that runs a little way down the body until it comes vertically over the pillar supporting the warp wires.



are used in the first three bays, pine being employed for the struts further aft.

The wings have no dihedral angle, as the designers object to this feature. The wing spars are of ash, and



"Flight" Copyright.

Lower pylon and its fittings, and on the right, sketch showing method of anchoring lift cables to the chassis members.

The rudder is controlled as usual by foot. The rudder and warp wires are enclosed in the body of the machine except for a very short length near the extremity, where they are attached to their respective organs.

A peculiarity of the tail is the absence of a fixed horizontal plane, the movable elevator being the only horizontal member. This elevator belongs to what is known as the balanced type, that is to say, its axis of rotation is situated more or less in the position of the usual centre of pressure, so that there is never a very great couple reacting upon the pilot's hand. The rudder is balanced in the same way.

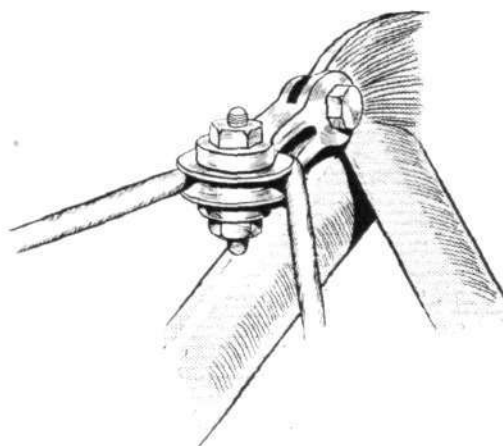
The machine is driven by an overhung 80-h.p. Gnome engine, which is fitted with an 8 ft. Integrale propeller. Two tanks are arranged in the nose of the machine, one containing 14 gallons of petrol, and the other about 5 gallons of oil. A subsidiary petrol tank holding 8 gallons of spirit is located behind the passenger's seat, and there is a hand pump attached to it in a convenient position for transferring its contents to the service tank while in flight.

A Bosch magneto firing Oleo plugs forms the ignition equipment of the engine, while a Tell revolution indicator, a barograph, a compass, and a map-holder are fittings in front of the pilot on the dashboard.

The body of the machine is surfaced with fabric, but its interior structure is of the usual girder type. Ash booms are employed, and ash struts and cross-members

the leading and trailing edges are fitted with pine stretchers. An internal bracing of piano wire is provided to stay the wing against drift.

Both front and rear spars are hinged to the body, the



"Flight" Copyright.

Detail of top pylon. The forward bracing wires are carried round a pulley.

former by a vertical bolt, and the latter, as usual, by a horizontal bolt to facilitate warping. With the exception of the internal wires, stranded cable is employed throughout for the wing bracing and control.

Deperdussins Flying in Notts.

ON Thursday, Friday and Saturday of last week some splendid flying on Deperdussin monoplanes was seen at the Rolleston racecourse, the exhibitions having been arranged by Mr. J. Mather, of Newark. On the afternoon of the first day there was a forty mile wind blowing, but in spite of that Mr. W. Brock on the 35-h.p. Anzani-Deperdussin made a good flight at a height of 2,000 ft. in the direction of Newark. Later in the evening he was up again, and this time went to Southwell, and on returning carried out several manoeuvres above the aerodrome before coming down. On this occasion he was in the air for over an hour. It had been hoped that during the afternoon Lieut. Porte would arrive on his big aeroplane from London, but the weather conditions were against it, and the journey had to be made by road. As on the previous day a large crowd of people, many of them coming by motor cars, arrived at the race-course, but it was not until mid-day that the first flight was made. Then Mr. Brock went up and after making a few circuits

went off in the direction of Nottingham. In half an hour he was back again and made a fine landing. In two subsequent trips he climbed to a great height, and meanwhile Lieut. Porte made a number of short passenger flights. On Saturday there was a larger attendance than ever, and both Mr. Brock and Lieut. Porte made many short flights, the latter taking up a large number of passengers. It is proposed to have another meeting on August Bank Holiday, when it is hoped that some competitions may be arranged.

The Wight Hydro-aeroplane.

FORTUNATELY the accident to the hydro-aeroplane built by Messrs. J. Samuel White & Co. was not so serious as at first appeared, and we learn from Mr. T. Howard Wright that it is expected that the machine will be ready for trials again in about three weeks' time. The accident was caused through an error of judgment in putting the machine to climb too steeply. She behaved splendidly on the water, being very stable on the two floats, and getting off very quickly.

ARMCHAIR REFLECTIONS.

By THE DREAMER.

"Now is the Winter of our Discontent—"

SPRING is here. I am not a bit afraid to make this assertion, although by the time this is in the press we may be doing anything from picnics to skating. I don't quite know when spring is supposed to commence, according to the calendar, though it is not, I believe, what we are pleased to call a "movable fixture." Spring to me is simply a question of weather, which, I venture to think, is better than going by the "book of the words." "What a lovely day—just like spring!" is the usual expression, which goes to show that spring weather never comes in spring. We may be in summer for all I know, but to me it is spring. Yesterday I was wet through, and wearing an extra thick waistcoat; to-day I am sweltering, and envy the girl in the "Salome blouse." I believe spring is supposed to upset the equilibrium of young men between the ages of eighteen and twenty-one. It seems to me calculated to upset everybody, at no matter what age. In our tender years brimstone follows in its train. A few years later, love is the order of the day. In advancing age it is rheumatism. Brimstone, love and rheumatism—surely a fine "spring mixture," though these three things are not so remote, one to the other, as might at first be imagined. Brimstone represents quite plausibly the fiery passion in the ardent youth "sighing like furnace." Love is the fire engine which quickly pours the waters of realisation into the very heart of the conflagration, and rheumatism follows as a natural consequence.

Yet there is something about spring that is rather nice in some ways. Apart from the fact that one can now leave off the overcoat that has been forced through another winter against all sense of respect for an old and well-trying servant, the tender sex can now begin to come out in their little "fussies" and look like little balls of Valenciennes, instead of teddy bears. Spring always seems to me like a bill at thirty days drawn on summer; one knows that in all probability it will not be met when due, but it can be paid into the bank of "Hopeso & Co.," and tends to inspire a comfortable feeling, unless it has been discounted.

With weather like this also ("this" was written quite two days ago, and I am not responsible for changes) there will be much flying (and other things) to admire at the various aerodromes. For Hendon, by the way, I have to say a good word.

I have on occasion, I know, said little things here about Hendon, and now they will see the wisdom of not having tracked me down to extermination. The improvements that have been made at this splendid and fashionable aerodrome are simply wonderful. I am not going to tell you what they are, but if you have not been there for a week or two, you won't know the place. To the management, and those responsible, I offer my sincere though humble congratulations; I am very pleased indeed, and it only wants that "Mechanics' benefit day" to make my happiness complete.

I never supposed, when writing these notes, that anybody would take me seriously, but it appears that I sometimes manage to "get there," as witness the humorous gentleman from beyond the Tweed (I have promised myself never to say Scotsman again); and now I find that Hendon has been hard hit over the "mixed bathing" question. What has happened? They have taken two cart-loads of clods and filled in the lake, and

the poor little tadpoles are as dead as Pharaoh's mother's mummy.

Pause, stranger, pray, or walk with care,
This little undulation
Is more than simple earth, it hides
A once embryo nation.

Our great, great men have always taught
Of life, its evolution—
But there—you know as well as I
This wonderful solution.

So, as you pass along to take
Your tea in Grand Pavilion,
Pray shed a tear for brothers dear,
Here buried by the million.

I have written the above simply to convince you that spring really is here. I seldom break out in this "rash" way at any other time.

The Danger of Fascination.

When, some little while ago, I wrote something about "The fascination of danger," I little thought I should soon have to write about the same words turned the other way about; but I have to, and I have to approach it with extreme caution. It is a ticklish subject.

I read in my paper that Mrs. Walter Brookins, wife of the famous American airman, has just won an action in the courts at San Antonio to have her marriage annulled on the ground that she was hypnotised by the flying feats of her husband. She gave evidence that Brookins, when waterplaning at Palm Beach, Florida, "hypnotised" her by permitting her to accompany him as a passenger. She was enchanted by her flight, and consented to marry him without further ado.

"Mr. Brookins was only 25 years of age when Miss Brown, at a height of 1,000 ft. above the earth, consented to marry him." The above words are an exact quotation from the cablegram, and it seems to me that by inserting the word "only" with regard to the age of Mr. Brookins, there is a sort of dim insinuation that the word "consented" might be changed for another. If I am to pass an opinion, without having had any experience in this direction myself, I should say that the lady was at least an accessory before the fact. As to love-making in an aeroplane at a height of a few thousand feet, I must confess it is far above me, my little knowledge having been vicariously obtained through smoking a cigarette in the conservatory, and being shut in so that I could not get out without making others feel uncomfortable, by a fool who had no eyes for anything but the business on hand. But if the muscular contortions of which I was an unwilling witness are always necessary for getting through the ordeal, and Mr. Brookins can repeat them when piloting an aeroplane, I shall be pleased to act as his manager as a "stunt" flyer over here, and I will guarantee to get him booked up for the next ten years, before he sails.

If they were flying in a machine in which the passenger sits in front, I do not quite see how things are going to be managed. It is not of much use giving a lady the "glad eye" in the back of her neck; and if she turned round and knelt on her seat, she has only herself to blame if he got in some of his best work. Whilst, if the pilot was in front, and he did the turning round business, I should think he was far on the road to take them both to a destination the whereabouts of which would depend on their past life.

In any case, I think, if I had been the judge, I should

have hesitated before giving a decision, as it appears to me there was certainly complicity on the part of the lady; though the seeking of divorce is certainly a better way out of the trouble than the course taken by another lady I read about only yesterday, who, in order to gain her release, "shot her husband through the window of the dining-room"—which I think was a low down thing to do.

Something to Go On With.

Weeks and weeks ago I wrote something about "a lesson from steam"; and now, when I had clean

forgotten all about it, along comes a letter from somebody who has evidently been thinking it over ever since, and who has apparently got me by the short hair. He says: "I don't believe it. Steam would not last so long as you say."

There is not much doubt that this gentleman has been wrestling with this mighty problem during many restless weeks, and did not write till he was quite sure of his ground. I know from intuition that he has thoroughly enjoyed it, so I will give him another, which will last him for the rest of his natural life, as I always like to give pleasure to others. *It was not the same steam!*

FIRST PROSECUTION UNDER AERIAL ACTS.

M. BRINDEJONC DES MOULINAIS, of 206, Boulevard Periere, Paris, appeared before Mr. Dickinson at Bow Street Police Court on the 15th inst., to answer two summonses charging him, as a person in control of an aeroplane, with having, before commencing a journey to the United Kingdom, failed to send notice to the Home Office stating the proposed landing place, the approximate time of arrival, and his name and nationality; further with contravening the orders made by the Home Secretary under the Aerial Navigation Acts, 1911 and 1913, by navigating a certain aircraft, coming from a place outside the United Kingdom, over part of the United Kingdom, viz., the County of London, without having first landed in one of the officially prescribed areas. The defendant pleaded "guilty" and elected to be dealt with summarily.

Mr. Muskett, who appeared on behalf of the Home Office, said

that it was a pleasure in the circumstances of this particular case to invite the magistrate not to take a very serious view of it, and not to impose any penalty unless he thought that the circumstances impelled him to do so. The defendant, who was a young man of about twenty years of age, was a Belgian subject. The Act under which he was summoned provided for a maximum punishment of six months' imprisonment, or a fine of £200, or both imprisonment and a fine. The first Act of Parliament dealing with aeroplanes, was passed in June, 1911, and gave the Secretary of State power, for the purpose of protecting the public from danger, to make orders prohibiting the navigation of aircraft over certain areas. It was found that that Act was insufficient for the purpose, and in the early part of this year another Act was passed which largely extended the powers of the Home Secretary. By virtue of such powers he made an Order, dated March 1st, prohibiting the navigation of aircraft from outside the United Kingdom over the whole of the coast line, except certain prescribed portions. One of these areas was between Margate and Walmer, another between Hove and Bognor, and so on, the area in each instance extending to 5 geographical miles from the coast. From information which had been kindly supplied by Mr. Richard Gates, the general manager of the Hendon aerodrome, it appeared that they were interested in the exploitation of a particular make of aeroplane, and had arranged for the defendant to fly from Bremen to Hendon on Friday last, for the purpose of demonstrating the flying capacities of the machine. Defendant left Bremen on Friday, but descended at Brussels on Saturday, owing to bad weather. He left Brussels on Sunday morning last and flew to Calais, where he descended for lunch. Afterwards, he continued his journey to Hendon, passing over Dover, which was a prohibited area, the magazines at Purfleet, and the Woolwich Arsenal. He was observed to pass over the arsenal at a height of 3,000 ft. and at a tremendous pace. Eventually he arrived at Hendon at 3.15 p.m. on Sunday, having no doubt, accomplished a very marvellous performance. No notice had been given of his intention to fly to this country, and he did not land at either of the prescribed areas. The defendant had intended to return to Bremen on his aeroplane on Monday last. There was no reason to think that he had erred other than through ignorance, and having regard to all the circumstances and to the fact that the defendant had placed no difficulties in the way of the prosecution, as he might have done, he asked the magistrate to exercise the utmost indulgence.

The defendant, in broken English, said that during the last two months he had flown in many countries, having crossed Spain, Belgium, Holland, Germany, and England, and he found it impossible to make himself thoroughly acquainted with the laws of every country. If he had known of this Act he would not have flown within the prohibited areas, as it would have made very little difference to him if he had descended on the coast. He would undertake to observe the law the next time he visited England. He had asked the Aero Club of France, of which he was a member, to advertise the laws of different countries in the newspapers, so that aviators might make themselves acquainted with them.

The magistrate said that we in this country were glad to welcome a brave and clever airman. On the other hand the regulations that had been made for the safety and defence of this realm must be observed. Those regulations had only been in force a short time, and he could quite believe that the defendant had not had an opportunity of studying them. In those circumstances the Government were only too glad to make an exception in this case, but it would be absolutely necessary to observe these rules in future. The defendant would be bound over in his own recognisances in 1,000 francs to come up for judgment if called upon within twelve months.



"AGAINST THE REGULATIONS."—An impression of Brindejone des Moulinais' Morane-Saulnier crossing the City—St. Paul's in the foreground. Time about 2.50 p.m. Sunday. Note: The unusual perspective is caused by the spectator looking upwards at the monoplane.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Tuesday, May 20th, 1913, when there were present: Col. H. C. L. Holden, C.B., F.R.S. (in the Chair), Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Prof. A. K. Huntington, Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Mr. Alec Ogilvie, Mr. Mervyn O'Gorman, Mr. C. F. Pollock, Mr. R. W. Wallace, K.C., and the Secretary.

New Members.—The following new members were elected:—Roy DelaCombe, Capt. E. L. Ellington, R.F.A., C. Kingsley Field, Lieut. G. W. Mapplebeck, Vincent Nicholl, Thomas Alfred Rainey, Lieut. Francis Gordon Small.

Aviators' Certificates.—The following Aviators' Certificates were granted:—

No.	Date.	
469	April 30, 1913	Lieut. Francis John Leslie Cogan, R.F.A. (Bristol Biplane, Bristol School, Brooklands).
470	April 30, 1913	2nd Lieut. Roger Marshall, R.F.A. (Reserve) (Bristol Biplane, Bristol School, Salisbury Plain).
471	April 30, 1913	2nd Lieut. Montagu Reaney Chidson, R.G.A. (Bristol Biplane, Bristol School, Salisbury Plain).
472	April 30, 1913	2nd Lieut. Cyril Gordon Hosking, R.F.A. (Bristol Biplane, Bristol School, Brooklands).
473	April 30, 1913	Harry Stewart (Caudron Biplane, Ewen School, Hendon).
474	May 2, 1913	Thomas Alfred Rainey (Bristol Biplane, Eastbourne Aviation School, Eastbourne).
475	May 2, 1913	Sergt. John Mead (Maurice Farman Biplane, Royal Flying Corps, Montrose).
476	May 2, 1913	Laurance Hugh Strain (Bristol Biplane, Bristol School, Brooklands).
477	May 5, 1913	Frank George Andreae (Vickers Biplane, Vickers School, Brooklands).
478	May 6, 1913	Major Neville John Gordon Cameron (Cameron Highlanders) (Vickers Biplane, Vickers School, Brooklands).
479	May 9, 1913	Lieut. Ulick John Deane Bourke (52nd Light Infantry) (Deperdussin Monoplane, Deperdussin School, Hendon).
480	May 10, 1913	John George Barron (Deperdussin Monoplane, Deperdussin School, Hendon).
481	May 13, 1913	Lieut. Francis George Brodribb, R.N. (Bristol Biplane, Bristol School, Salisbury Plain).
482	May 16, 1913	Robert Arthur King (Farman Biplane, Freshfield).
483	May 17, 1913	Lieut. William Gore Sutherland Mitchell (1st Highland Light Infantry) (Vickers Biplane, Vickers School, Brooklands).
484	May 17, 1913	Major George Charleton Merrick, R.G.A. (Bristol Biplane, Bristol School, Brooklands).

Vacancy on Committee.—Mr. T. O. M. Sopwith was elected to the Committee, to fill the vacancy created by the death of Sir Charles D. Rose, Bart.

F.A.I. Conferences.—A meeting of the International Law Committee of the Fédération Aéronautique Internationale, of which Mr. Roger W. Wallace, K.C., is the Chairman, will be held in Brussels on the 20th and 21st June, 1913. Mr. Roger W. Wallace, K.C., and Mr. Griffith Brewer will attend as delegates on behalf of the Royal Aero Club.

Special Committees appointed by the Fédération will also assemble at Brussels at the same time to discuss the conditions for the

Gordon-Bennett Aviation Race in 1914, and also the question of maps.

National Aerial Defence Association.—A report of the two meetings recently held at the Mansion House was received, together with an invitation from the Association to nominate three representatives of the Royal Aero Club to join the Executive Committee of the Association. The following were appointed: the Chairman (the Marquess of Tullibardine, M.V.O., D.S.O., M.P.), the Vice-Chairman (Col. H. C. L. Holden, C.B.) and Mr. Roger W. Wallace, K.C.

British Height Record with Two Passengers.—The report of the flight made by Major E. L. Gerrard, R.M.L.I., accompanied by two passengers, on May 2nd, 1913, together with barograph charts, were considered, and it was decided to accept the height accomplished, viz., 8,400 ft. as a British height record for aviator and two passengers. The aircraft used on this occasion was a "B.E." Army machine fitted with 140-h.p. Gnome.

Appointment of Timekeeper.—Mr. J. A. Walker was appointed an official timekeeper of this Club for the year 1913.

Kite and Model Aeroplane Association.—It was unanimously decided to present a prize of £5 5s. to this Association for competition amongst its members.

Competitions Committee.

A meeting was held on Monday, the 19th May, 1913, when there were present:—Col. H. C. L. Holden, C.B., F.R.S. (in the Chair), Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Capt. A. E. Davidson, R.E., Mr. J. T. C. Moore-Brabazon, Mr. E. V. Sassoon, and the Secretary. "Daily Mail" Prizes.—The draft rules for the prizes of £10,000 and £5,000 offered by the *Daily Mail*, were under consideration.

Hangar at Nuneaton.

A letter has been received by the Club from Mr. E. J. Melly, of Nuneaton, in which he states that he is proposing to erect a hangar in the neighbourhood of Nuneaton, at his own expense, for the use of aviators who happen to be flying in that district. The Committee of the Club has tendered its thanks to Mr. Melly for his patriotic offer and also its co-operation in making it known to aviators. Mr. Melly has been assisted by his brother, Mr. Henry G. Melly, who has an aviation school at Waterloo, Liverpool, in selecting the site for the hangar. As soon as the hangar has been completed, a map will be published giving its exact location.

International Aviation Meeting at Vienna.

Particulars have reached the Club of the International Aviation Meeting to be held at Vienna, June 15th-22nd, 1913, at which prizes amounting to nearly £6,000 are offered. Aviators wishing to compete can obtain full information on application to the Club.

Mortimer Singer £500 Prize.

Intending competitors are reminded that this competition is now open, and full particulars can be obtained on application to the Club.

British Empire Michelin Competitions, £800 and £500.

Intending competitors are reminded that these prizes are now open for competition, and full particulars can be obtained on application to the Club.

Balloon Race at Hurlingham.

On Saturday, the 31st inst., a "Hare and Hounds" Balloon Race will take place at the Hurlingham Club, Fulham, S.W., at 3 o'clock, for a cup presented by Mr. John D. Dunville. Mr. John D. Dunville will pilot the "Hare" Balloon, and the competitors will follow at short intervals. The competitor who lands nearest the "Hare" Balloon will be the winner.

Entries close on Tuesday next, the 27th inst., and so far the following have entered: Mr. A. Mortimer Singer, Major E. M. Maitland, Mr. James Radley, Mr. Lionel H. Mander.

Members will be admitted free to the Hurlingham Club on presentation of their Royal Aero Club Membership Cards.

166, Piccadilly, W.

HAROLD E. PERRIN, Secretary.

National Aerial Defence Association.

At a business meeting held at the Mansion House on the 16th inst. when an Executive Committee was appointed, and it was decided that the Grand Council for the General Control of the policy and work of the Association should consist of the Lords Lieutenant, Lord Mayors, Lord Provosts, Mayors and Provosts of the United Kingdom. Subscribers to the movement and such

other persons as may be added by the Lord Mayor of London in consultation with Lord Blyth and the Executive Committee of the Navy League.

The Lord Mayor of London, The Lord Blyth, Sir G. Wyatt Truscott and Mr. Ernest Kennedy were appointed Trustees, Mr. V. Briscoe Tritton, Hon. Treasurer and Mr. P. J. Hannon, Hon. Secretary.

FROM THE BRITISH FLYING GROUNDS.

Brooklands Aerodrome.

TUESDAY last week, full advantage was taken of the ideal weather conditions and a large number of machines were out. Commander Samson on the Short biplane rose quickly to an altitude of 2,000 ft. and was soon out of sight *en route* for Eastchurch, flying at a great pace.

Lieut. W. G. S. Mitchell, 1st H.L.I., passed the first half of his *brevet* test Wednesday on a Vickers biplane in a most workmanlike manner, flying steadily at an average height of 240 ft., with good banked turns, and *vol plane* landing on the mark. This pupil has only been at the Vickers School for a fortnight, and, in the absence of Mr. Barnwell, received his instruction solely at the hands of Mr. Knight, who was most pleased with his progress in the short time.



Major Neville Cameron (Cameron Highlanders), who took his *brevet* on the Vickers biplane in good style, in spite of a bumpy wind during the tests.

Thursday and Friday the schools were idle owing to the strong winds.

Major G. C. Merrick passed his *brevet* tests in good style Saturday on the Bristol biplane. The Bristol School, under the capable management of Mr. F. Warren Merriam, has now three school machines, one new, to cope with the increasing number of pupils, most of whom have been recommended by old pupils. A new tractor-type biplane is expected to be delivered shortly. Lieut. W. G. S. Mitchell, 1st H.L.I., passed the second half of his *brevet* test in excellent style at an average altitude of 200 ft., flying steadily throughout and again landing on the mark. This pupil is now shaping well on the Vickers monoplane. At 7.50 a.m. Mr. Sydney Pickles arrived in a Handley Page monoplane after an excellent 50 mins.' run from Southampton.

Mr. Hawker made several circuits at 500 ft. to further test the new Sopwith hydro-aeroplane, which will shortly be tested on the sea.

Sunday, Mr. Hamel arrived about 6.15 p.m., and after several circuits descended in one of his wonderful spiral *vol plans*. With a 35-mile-an-hour wind blowing in the afternoon only a few machines were out. Mr. Hamel gave three good exhibition flights on his single-seater Blériot, but even he, experienced pilot that he is, did not care to remain up long owing to the treacherous gusts which he experienced in the air from time to time. Lieut. Spencer Grey made a good test of the new Sopwith tractor biplane, and astonished everyone with the way he made the machine climb. Afterwards Mr. Hawker made several good flights with and without passengers. The winner of the ballot for the free passenger flight preferred to wait until the following week in the hope of better conditions. The competition arranged for the public from the Vickers and Bristol schools was reluctantly abandoned until next Sunday. At the present moment Brooklands can boast of as fine a batch of pupils as has ever been gathered together at one time at any aerodrome, and a keenly contested fight for the silver cup is anticipated next week. This is, we believe, the first competition ever promoted solely for pupils, and the fact that their respective instructors have sufficient confidence in their abilities to allow them to compete speaks

volumes for the high degree of proficiency attained by them. On Saturday afternoon, May 31, attempts will be made on the British altitude record—and possibly also on the world's record—at Brooklands, by Messrs. Hamel, Hawker, Gordon Bell and other well-known aviators, and given decent weather conditions, great results are expected.

Vickers School.—Early Monday morning last week, Knight testing new biplane with 70-h.p. Gnome engine. Then on other School biplane with Mr. Beever. Wind stopped further flying.

Tuesday, in the evening, Knight testing biplane, then handing over to Mr. Mitchell, who did some excellent circuits at good height. Mr. Orr Paterson then on biplane solo. Mr. Waterfall, and afterwards Knight, on biplane, both taking passenger. Knight, then with Mr. Beever, Messrs. Mitchell and Orr Paterson alternately, circuits at about 400 ft.

Knight testing biplane, Wednesday morning, with Mr. Beever behind. This pupil was then promoted to front seat, Knight sitting behind, and did some very good straights. Mr. Mitchell then went through the first half of his *brevet*, performed on biplane in splendid style. Knight then testing No. 5 mono., afterwards handing over to Mr. Waterfall, who did some excellent circuits at 2,000 ft., being in the air about 45 min.

Early Friday morning Knight, on biplane, with Mr. Beever as passenger. Then Mr. Beever in front seat, Knight behind, for straights. A thick fog then came over and flying was prevented for about two hours. Mr. Waterfall then, on biplane with passenger, practising landings for competition. Knight then took a passenger for flight in biplane. Mr. Mitchell then went through the second half of his *brevet* flights in excellent style. Mr. Orr Paterson then circuits solo. Capt. Wood testing new biplane with 70-h.p. Gnome engine, then Knight on same machine. After test flight by Knight, Mr. Waterfall went for circuits on No. 5 mono. Capt. Wood again, flying new biplane. Mr. Orr Paterson, meanwhile circuits on the other school biplane. Mr. Mitchell then went on No. 3 mono. with Knight in instructor's seat for straights.



Mr. F. G. Andreae, one of the recent pupils who took his *brevet* on the Vickers biplane, reaching nearly a thousand feet during his test, his banked turns being particularly good.

Sunday, Knight testing biplane early in the morning, followed by Messrs. Wight and Waterfall, and Lieut. Blatherwick, practising bomb-dropping and landing for competition. Mr. Beever, with Knight behind, straights for 10 mins.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Tuesday, last week, very windy day. Mr. Manton only pupil out, doing circuits on the 35 Blériot. Next day pupils out at 5.30 a.m., Mr. Pougher on No. 7 doing straights under supervision of Mr. Noel. Mr. Carr also doing straights.

Pupils confined to hangars Thursday and Friday, it being too windy for out-door work. On Saturday Mr. Tone Bayetto doing circuits on B2 monoplane, Mr. Birchenough doing straights on No. 7 biplane with Mr. Noel.

Blériot School.—Practically the only day last week on which it was possible for practice was Saturday, when Capt. Cox and Messrs. R. Desoutter, Williams and de Villiers were all at work—Mr. Desoutter was doing figure eights and *vol plané* landings, and but for the absence of observers, was going for his certificate. Capt. Cox was out at rolling practice on No. 1, as also were Messrs. Williams and de Villiers. Mr. R. B. Slack tried out No. 5, the 50-h.p. Gnome engine of which had been adjusted during the week, and did several circuits round and outside the aerodrome. The remainder of the week having been too bad for school work outside, the pupils have had to confine their attentions to adjustments and alterations inside the sheds.

Mr. Gower, a new pupil, has joined the school and is commencing his tuition on Monday.

British Deperdussin School.—Tuesday, Wednesday, Thursday and Friday, last week, very windy, although beautifully fine, therefore no school work.

Col. N. M. Smyth, V.C., late commanding The Carabineers, joined the school and had his first lesson on Saturday, rolling for 10 mins. on taxi 2.

W. H. Ewen School.—All the school work during last week has been confined to early mornings, but a very satisfactory amount of work has been put in by pupils, under the instruction of M. Baumann.

On Monday the pupils were out at 4.40 a.m., when M. Baumann, after test flight on 35-h.p. Caudron, handed the machine over to Mr. M. Zubiaga, who was doing circuits at 300 ft. and making good

of short fine period to get in two circuits on the biplane with Lieut. Priestley, R.N.

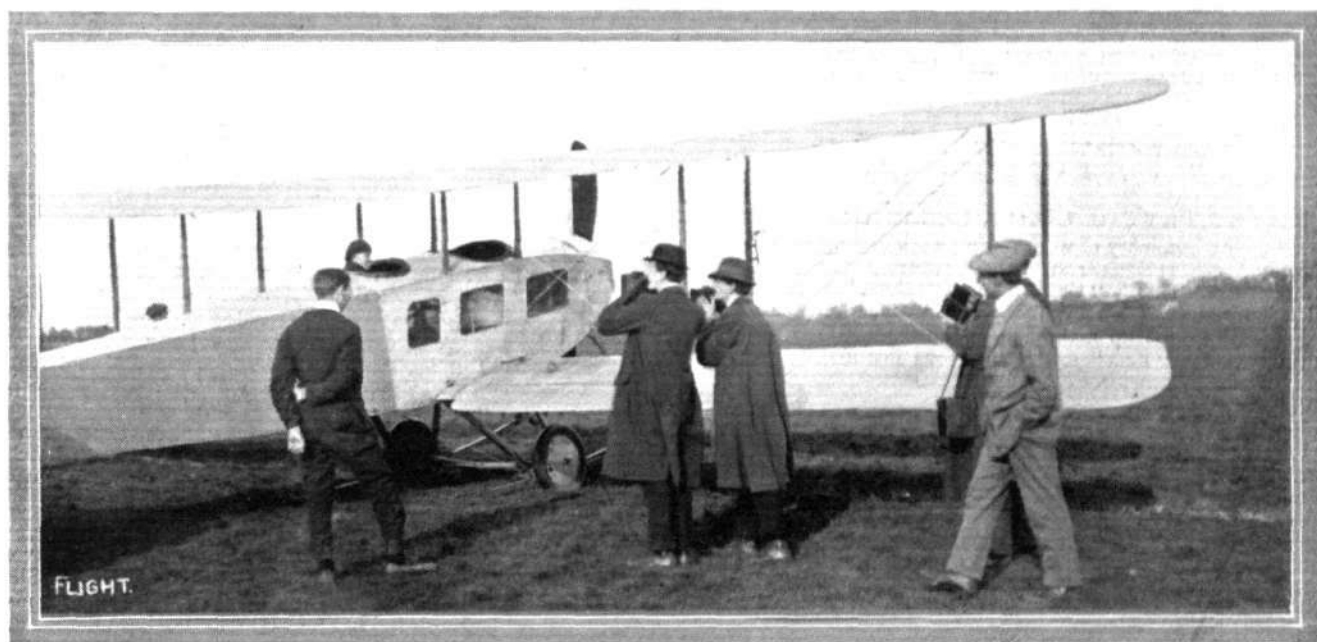
Weather unfit for tuition work, Tuesday, until the evening, when Pixton commenced with Lieut.-Col. Hamilton—new pupil—by taking him for two long circuits. Lieut. Brodribb, R.N., passed for his *brevet* on the biplane, flying well and making good landings. Meanwhile, Busted was giving tuition on another school biplane to Lieut. Burns, one flight; Messrs. Adams and Grey, two flights each; Lieut.-Col. Hamilton, two flights; Mr. Garnett, one flight, and one large circuit on the side-by-side mono. with Lieut. Burns. Darkness prevented further work.

Again no tuition was possible Wednesday until the evening, when Pixton had the biplane out and gave a trip to Lieut. Hobbs, a prospective pupil. The conditions were still not at all favourable, and after a wait Pixton, with Mr. Grey as passenger, again tried the air, but found no improvement.

Thursday—continued rain and wind and no tuition possible.

Tuition work again confined to the evening Friday. Busted got busy with tuition on biplane to the following pupils, Lieut.-Col. Hamilton two flights, Lieut. Burns two flights, Mr. Adams two flights—on one of which he took the pilot's seat—and a trip to Lieut. Napier, of the Warwickshire Yeomanry. A solo by Mr. Delaplane concluded the evening's work.

Saturday, by way of a change the morning opened out quite good and the pupils were able to get in a deal of useful practice. Busted on the biplane gave four flights each to Lieut.-Col. Hamilton and Lieut. Burns and one flight with Mr. Adams in the pilot's seat. On another



"Flight" Copyright.

The penalty of popularity. Mr. Hawker on the Sopwith-Tractor having his picture taken at Hendon.

landings. Lieut. W. C. Hicks was also doing half circuits in good style, and Mr. C. George, a new pupil, had his first instruction in rolling practice.

The pupils were out at 4 a.m. on Tuesday, when M. Baumann, after test flight on 35-h.p. Caudron No. 2, handed the machine over to Lieuts. G. Adams and W. C. Hicks and Mr. Zubiaga, who were all doing circuits in good style, while Mr. C. George was rolling on the same machine. During the evening, Mr. L. W. F. Turner was out testing one of the new 45-h.p. British-built Anzani-Caudrons, which was flying splendidly.

On Wednesday the pupils were out at 4 a.m. M. Baumann, after test flying on the 35-h.p. Caudron handed the machine over to Lieuts. G. Adams and W. C. Hicks, who were doing half circuits, Mr. H. Gist doing straight flights, and Messrs. H. Jagenberg and N. Cowling rolling on same machine.

It was much too windy for school work on Saturday. Mr. Turner, however, was doing exhibition work on the 60-h.p. Caudron, and afterwards on the 45-h.p. Caudron.

On Sunday Mr. Sydney Pickles made several exhibition flights on the 60-h.p. Caudron in a strong wind, rising rapidly to 3,500 ft., banking in his old Caudron style, and always landing with a beautiful spiral pique.

Salisbury Plain.

Bristol School.—Monday last week was just one continuous rain all day long until the evening, when Busted took advantage

school biplane Messrs. Delaplane and Gipps were very busy, each doing four solos. Mr. Adams next did his first solo very well, and immediately afterwards followed up with two further solos. Busted out with Mechanic Willis testing Renault tractor biplanes. Sunday, bad weather would not admit of any tuition.

Royal Flying Corps. No. 3 Squadron.—On Tuesday evening two machines arrived from Farnborough. The first, H. Farman, 274, with Lieut. Cholmondeley in charge, while the other, H. Farman, 268, was piloted by Lieut. Roupell.

Wednesday morning was ideal for out-door work, and an early arrival from Farnborough was Lieut. Carmichael on H. Farman 275, followed by Lieut. Allen on H. Farman 277, Sergt. Ridd on M. Farman 216, Capt. Connor on M. Farman 270 (with Air-Mechanic Jenkins as passenger), and Major Brooke-Popham on Avro 285. Lieut. Ashton on M. Farman 269 (with Air-Mechanic Willis as passenger) came down at Basingstoke, but arrived safely at Salisbury in the evening.

Lieut. Cholmondeley was out with Lieut. Wadham as passenger on H. Farman 274, and later went over to the Central Flying School. In evening Lieut. Cholmondeley on H. Farman 274 made seven flights taking up passengers. Major Brooke-Popham and Lieut. Conren on the Avro 285, Lieut. Roupell on H. Farman 286, Lieut. Carmichael on H. Farman 275, Lieut. Small on M. Farman 270, and Sergt. Ridd on M. Farman 216 made two flights.

Throughout Thursday owing to boisterous wind and rain

impossible to do any flying, but on Friday morning there was a change in the weather, and flying was continuous until mid-day. First out was Major Higgins on H. Farman 277 with Capt. Connor, making a half hour's flight, observing artillery firing. Capt. Connor was afterwards up with Lieut. Carmichael on H. Farman 275 for a 40 minutes' scouting trip. Lieut. Allen on H. Farman 277 took up Lieut. Porter for 30 mins.

In the evening, Lieut. Ashton was out three times on M. Farman 269, and then Lieuts. Porter and Glenville took over the machine. Capt. Connor, with Capt. Burton as passenger, made a scouting trip round the different camps. Lieut. Small, on M. Farman 216, Lieut. Carmichael, on H. Farman 275, Lieut. Roupell, on H. Farman 277, Lieuts. Conren, Anderson and Porter, on Avro 285, and Major Higgins, on a biplane, all made a number of very fine flights, most of them with passengers.

In the fine weather on Saturday morning, Lieut. Glenville started the ball rolling on M. Farman 270, but, owing to engine trouble, was forced to land. Lieut. Ashton, on a M. Farman, with Lieut. Allen as passenger, started on a cross-country flight to Brighton. Lieut. Burroughs, on H. Farman 275, with Sergt. Jones left for Basingstoke. Major Brooke-Popham put up an excellent flight at a good height on Avro 285; on landing, Major Higgins, D.S.O., took up the Avro to a height of 3,000 ft. very quickly. On landing, he changed over to H. Farman 277, taking up Air-Mechanic Pearce as passenger. He also made four more flights, taking up Lawson of the Notts Terr. R.H.A., Sergt. Howe, R.F.A., and Qm.-Sergt. Cosley, R.F.A. Lieut. Conren went for a cross-country flight on Avro 285 to Newbury and had a very unpleasant journey back. Lieut. Burroughs, with Sergt. Jones as passenger, had a very exciting time, as they lost their way and found themselves at Sparkford. There, owing to engine

trouble, they came down, and in landing smashed up, throwing the pilot and passenger out. Fortunately they were not seriously hurt. Major Raleigh, with Capt. Longcroft, arrived from Farnborough on a Breguet biplane, and after a short stay Major Raleigh flew back to Farnborough with Capt. Longcroft on B.E. 275.

Monday morning, in spite of the gusty winds, Lieut. Glenville made three flights on M. Farman 270, taking up passengers of the Notts R.H.A., also Air-Mechanic Hobby for tuition, on landing rather roughly then broke a few diagonal wires. Lieut. Carmichael on H. Farman 277, Lieut. Conren on Avro 285 made two good flights, each of 30 mins. After breakfast, Major Higgins, D.S.O., out with passenger on H. Farman 277, also Lieut. Carmichael on H. Farman 286 landing in very boisterous winds. Evening, Major Higgins, D.S.O., on H. Farman 268 with Lieut. Anderson as passenger at a good height signalling with flags. On landing Lieut. Carmichael took charge of biplane with Capt. Connor as passenger, took off to a height of 1,500 ft. firing coloured rockets.

Yorkshire Aerodrome.

ON Whit Monday and Tuesday, Mr. Harold Blackburn gave exhibition flights before a large crowd of Leeds and Wakefield people. He flew a new 50-h.p. Gnome Blackburn which was in the air for the first time on Monday. Rising rapidly to a height of 1,000 ft., he circled round the Aerodrome and the surrounding country. There was a strong gusty wind blowing at the time and occasionally when flying against the wind, his machine appeared almost to be at a standstill. Two fairly long flights were made on the Tuesday, flying on one occasion across country in the direction of Wakefield. On Friday he made a tour right round the outskirts of Wakefield, keeping all the time at about 2,000 ft., so that from any quarter of the town a clear view of the machine was obtained. A perfect *vol plané* into the Aerodrome terminated the flight.

BRITISH NOTES OF THE WEEK.

ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE Summary of work during week ending May 16th:

No. 1 (Airship) Squadron. Farnborough.—On the 13th inst., all three ships "Beta," "Gamma" and "Delta" were out. The "Beta" made several night reconnaissances, and the "Gamma" was moored in the open throughout the night. On the 14th and 16th inst., the "Beta" made numerous instructional trips and reconnaissance flights.

No. 2 Squadron. Montrose.—The week was devoted to overhauling all the machines and engines. Several officers proceeded to Farnborough to fetch some more machines. Capt. Becke left Farnborough for Montrose on Friday, and reached York on Saturday, stopping Friday night at Oxford.

No. 3 Squadron. Larkhill.—On the 10th, 13th, 14th and 16th inst. all the machines were out, some 20 long reconnaissance flights over Hants, Wilts, and Berks being carried out. On the 16th some valuable results were obtained from the observation of artillery fire. The machines used were B.E.s., Avros, H. and M. Farmans.

No. 4 Squadron. Farnborough.—On the 13th and 14th, all the pilots were up carrying out instructional reconnaissance flights. The machines used were B.E.s., Breguets and M. Farmans.

Flying Depôt. Farnborough.—Experiments of various kinds were carried out on B.E.s. and H. Farmans. Excellent results were obtained with the wireless machine. The Blériots were out for tests most days during the week.

New British Passenger Height Record.

OFFICIAL recognition has just been accorded by the Royal Aero Club to a new British height record with two passengers made by Major E. L. Gerrard on a BE army biplane fitted with 140-h.p. Gnome motor on May 2nd. The height attained was 8,400 ft.

The R.Ae.C. Committee.

MR. T. O. M. SOPWITH has been elected to fill the vacancy on the committee of the Royal Aero Club caused by the death of Sir C. D. Rose.

No Hydro-aeroplane contests on the Thames.

ON the ground that the non-tidal portion of the river is unsuitable for hydro-aeroplane contests, the Thames Conservancy has refused permission to the Phyllis Court Club for such events at Henley.

The Aerial League and Empire Day.

BY way of bringing home to the young idea the importance of aviation from a national point of view, the Aerial League has arranged for an aerial demonstration and exhibition flights at Park Royal to-day, Saturday. The Boy Scouts of Middlesex are to be present in force, and it is hoped that there will be a large attendance of the school boys and girls of West London. A short address on Aviation, from the patriotic standpoint, is to be given by General H. T. Arbuthnot, Chairman of the League.

Mr. Hucks at Stamford.

A REMARKABLE demonstration of flying was given by Mr. B. C. Hucks on Whit Monday at Burghley Park, Stamford. The wind was averaging 35 miles per hour, while it rained almost continuously throughout the day, but in spite of these facts an enormous crowd, 8,000 strong, assembled and paid for admission to the grounds. As usual, Mr. Hucks did not disappoint them. Previous to Whit Monday, it had been announced in the district that he would fly at 2, 3, 4, 5 and 6 o'clock. As the respective hours chimed, so he set out on his Blériot without a moment's hesitation to carry out the necessary flights. Altogether he gave six separate exhibitions, during the longest of which he climbed quickly to an altitude of over 4,000 ft. to the intense delight of the assembled crowd.

And at Sleaford.

DURING the early part of this week, in spite of none too favourable weather, he carried out successfully, exhibition flights at Sleaford, Lincolnshire. From that town, he goes on the 29th inst., to Peterborough where he is booked to fly on behalf of the North Northamptonshire Conservative Association. The following week he is down to fly in Nottingham.

G. L. Temple at Manchester.

ON Wednesday week in a wind blowing at close on 40 m.p.h., G. L. Temple made two flights at the Trafford Park aerodrome, Manchester, in his 35-h.p. Caudron biplane. Early that morning he also went for a trial flight, making a tour of the city in the direction of Barton Moss. Thursday found the wind as strong as before, and during the day Mr. Temple again gave two flights before a large crowd. The next day the conditions had improved and at noon the pilot flew over Old Trafford and the Barton districts at a height of 500 ft. Again later he flew over Eccles Church, Umston, and Barton Moss, and in returning passed over the county cricket ground where a match was in progress, covering a distance of over 15 miles. In the presence of over 6,000 spectators on Saturday Mr. Temple gave a splendid flight. Rising to a height of 2,200 ft., he flew directly over the White City, in a tricky wind, and again out to the county cricket ground. After flying a distance of over 15 miles, he landed in the aerodrome with a steep *vol plané*.

Brindejone des Moulinais returns to France.

AFTER having done some good flying at Hendon on Saturday, Brindejone des Moulinais started off on Sunday from Hendon at 7.45 a.m. for Paris. He was accompanied on his Morane-Saulnier machine by the designer, M. Saulnier, and after carefully skirting London on the north side, the voyagers crossed the Thames in the neighbourhood of Gravesend and continued to the coast by way of Canterbury. Dover was passed at 8.26 and fourteen minutes later the machine descended at Calais. Unfortunately in landing it was caught by a gust of wind and overturned. The occupants however escaped serious injury but the aeroplane was badly damaged.

FOREIGN AVIATION NEWS.

Chevilliard Still Busy.

ON the 14th inst., Chevilliard succeeded in putting eight H. Farman biplanes through their official trials before being taken over by the military authorities. The proceedings were officially observed by Capt. Destouches.

Gilbert Back at Clermont-Ferrand.

FLYING through the wind and rain on his Rhone-engined Henry Farman biplane, Gilbert, on the 13th inst., returned from Vichy to Clermont-Ferrand.

Good Work by Guillaux.

HAVING concluded his exhibitions at Croix St. Leufroy, Guillaux, on his Clement Bayard monoplane, on the 13th inst., returned to Issy, doing the journey in 1 hr. 35 mins. The next day he paid a visit to Chalais Meudon, and circled above Paris for some time before landing again at Issy, after being in the air for an hour.

Nieuports for French Naval Manœuvres.

ON the 13th inst. two Nieuport hydro-monoplanes, piloted by French naval officers, arrived at Toulon from St. Raphael, in order to take part in the French naval manœuvres. After landing in the harbour, the machines were taken to the mother ship "Foudre" and hoisted on board.

Fast Flying on Bathiat-Sanchez.

ON a Bathiat-Sanchez monoplane Lieut. Morel on Saturday last went from Mourmelon to Compiègne. The return trip on the following day was made in 45 mins.

Lieut. Menard for the Pole.

LIEUT. MENARD has now definitely decided to accept the invitation to accompany the French expedition which is to explore Francis Joseph Land in the North Polar regions.

Good Work by Farman Pilots.

ON the 13th inst. Lieut. Combette, by way of making his last test for a superior *brevet*, flew on his H. Farman from Mailly Camp to Etampes, and on the following day Lieut. de Beauchamp went from Buc to Mailly Camp and back, also on a Farman. At Etampes on the 15th inst. Marc was flying on his H. Farman, at a height of 500 metres for an hour and a half.

A Dep. Superior Pilot.

BY way of completing his tests for a superior *brevet*, Lieut. Lamoret on the 14th inst. went from Betheny to Amiens and back. On the return journey he was surprised by a rainstorm, but was able to get back safely. The same day Lieut. Brocard arrived back at Betheny from Buc on his three-seater Deperdussin.

A British Sportsman at Morane School.

AMONG the large number of pupils who are now undergoing

instruction at the Morane-Saulnier school at Villacoublay is Lord Carberry who made his *debut* on the 15th inst.

Etienne Giraud returns to Paris.

AFTER having carried out a splendid series of cross-country flights in the South of France on his Blériot two-seater monoplane, Etienne Giraud has returned to Paris. He started from Montelimar on Sunday week, and flying along the Rhone valley passed over Valence and Givors to Lyon. He continued his journey on the 16th inst. when he reached Avor camp, and on Saturday arrived at Buc, having covered the 230 kiloms. from Lyon in exactly two hours.

A Fine Flight at Pau.

ON Wednesday week Thoret on a 50-h.p. Blériot made a 100 kilom. trip from Pau to Lourdes and Tarbes and back in an hour and a half.

A Deperdussin over Paris.

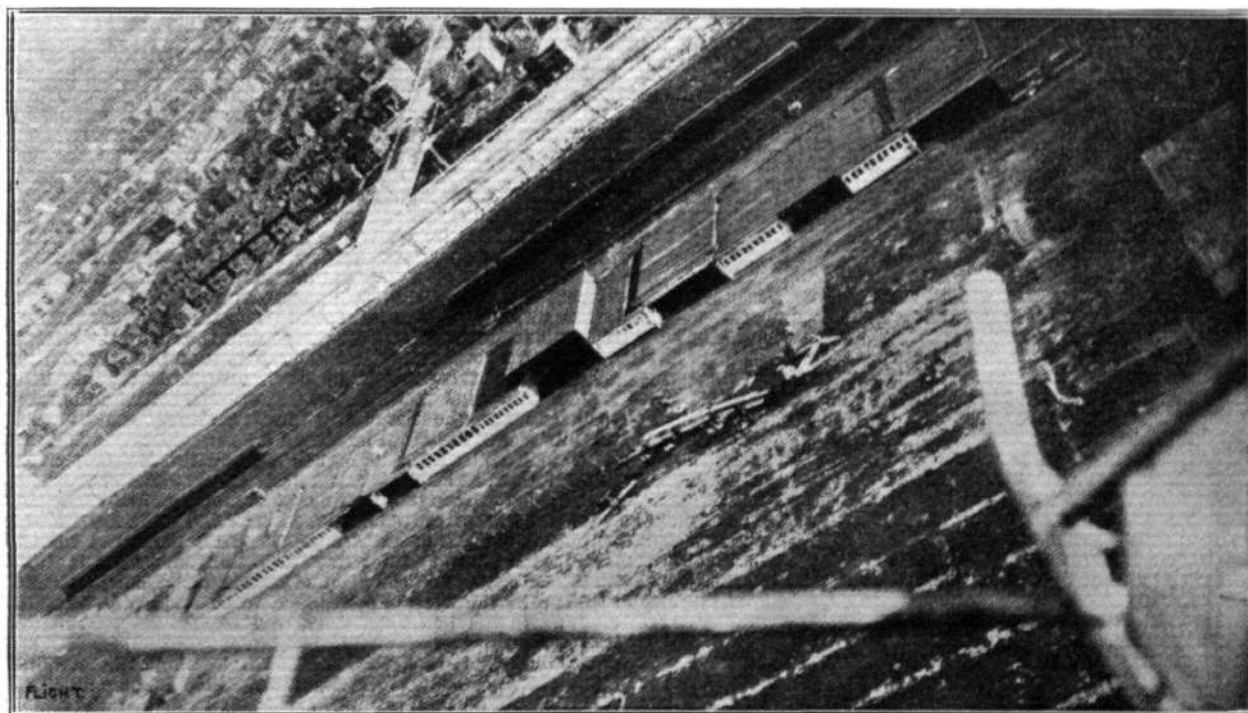
LEMOINE, who has for some time been practising at Juvisy, on Monday took delivery of a new 50-h.p. Anzani-Deperdussin. He flew over Paris at a height of 1,500 metres and then did a *vol plané* at Issy, but when quite close to the ground he suddenly elevated and flew off, to finally land before his hangar at Juvisy.

A Match between Audemars and Garros.

A special match has been arranged between Audemars and Garros to be decided on June 1st. The match will consist of three events:—1, a speed test over 50 kiloms., the pilots being mounted on similar machines fitted with similarly powered motors and propellers of equal dimensions; 2, a rapid climbing test to a minimum altitude of 2,000 metres; and 3, a fantastic and dexterous flight. It is the last item which is likely to prove most exciting, as both Audemars and Garros are past masters in the art of "stunts." Incidentally the winner of the match will get £400.

An Escadrille on Tour.

ON the 13th inst. an *escadrille* of monoplanes from the Maubeuge centre, piloted by Capt. Yence (Blériot), Lieut. Radisson (Deperdussin), Lieut. Lalanne (Deperdussin), Sergeant-Major Didier (Deperdussin), and Sergeant Verdier (Deperdussin), each with a mechanic on board. All the machines arrived safely at Dunkerque, and later in the day they journeyed in company to Calais. On the 15th they went on to Crotoy, while on the following day a flight of a little over an hour's duration took the aviators to Peronne. On Sunday the stage was from Peronne to Rheims, a distance of 120 kiloms., which was traversed in 53 mins., while on Monday, the 90 kiloms. which separate Rheims from Mezieres were covered in three-quarters of an hour.



What terra firma looks like from an aeroplane with a 45 deg. bank on. From a photograph by C. M. Vought, when flying in a Lillie-Wright at Cicero, Ill., U.S.A.

The Aerial Post in Belgium.

LAST Saturday Crombez, on a Deperdussin monoplane, instituted an aerial post between Ghent, where the International Exhibition is being held, and Antwerp. He did the round trip in an hour and a-half.

German Military Authorities Take Action.

FOLLOWING on the numerous incidents which have occurred lately of German military aeronauts and aviators landing outside the limits of the country it is announced that the military authorities have issued an order forbidding officers, without exception, to pass above the frontier.

A Long Trip in Germany.

ON the 14th inst. the Bavarian pilot Henneberg started from the Schleissheim aerodrome, near Munich, and after covering 380 kiloms. in 3 hrs. 10 mins., he landed at Gemersheim in the Rhenish district.

Spring Meeting at Johannisthal.

FOR the meeting which is to be held at the Johannisthal aerodrome during the coming week, five events are down for competition. They are: 1, quick starting; 2, quick landing; 3, total aggregate of flights; 4, speed-contest; 5, total aggregate of flights by lady pilots. The prizes total, £2,800.

Another Fatal Collision at Johannisthal.

TWO school machines collided in mid-air at Johannisthal, on Wednesday, and the pilot of the biplane, a Swiss officer, Capt. Jucker, was killed and his passenger injured, while Sechseier and his passenger, who were on a monoplane, escaped with a few bruises.

A Flying Week at Vienna.

UNDER the auspices of the Imperial Austrian Aero Club a flying week is to be held at the Aspern aerodrome, near Vienna, from June 15th to the 22nd. The prizes total to over £5,880, and special gold medals will be given to aviators breaking world's records. There are also special prizes offered to lady aviators.

An Italian Company.

A NEW company for the construction of aeroplanes in Italy, under the title of the Società Anonima Costruzioni Aeronautiche "Savoia," has just been formed at Milan by Mr. Lawrence Santoni, who will act as managing director. The company starts with the sole Italian manufacturing and agency rights for the British-designed Deperdussins, and the Italian rights for the Henry and Maurice Farmans, of Billancourt.

Bider in Switzerland.

CONTINUING his series of flights in his native country on his Blériot monoplane, Bider, on Monday, started from Sion at 5.40 a.m., and at 6.7 landed at Lausanne. He carried Col. de Courten as a passenger. Later in the day he flew across to Berne.

A Fatality in Herzegovina.

WHILE flying a military aeroplane near Capljina in Herzegovina on Saturday last, the Austrian officer, Capt. Andrie, fell and was instantly killed. The passenger on his machine, Lieut. Slassig, was only slightly injured.

More Deperdussins for Spain.

FOR the civil school which has been organised by the Spanish Government, five Deperdussin monoplanes have just been purchased, and the Marquis de Morella, Adano Menendez and de la Penas, all of whom have learnt on Deps., have been appointed instructors.

The Russian National Fund.

UP to the beginning of April, the donations received by the Imperial Russian Aero Club towards the provision of an aerial fleet totalled £11,626.

A Collision at St. Petersburg.

BRIEF note from St. Petersburg states that, on Monday, a collision occurred between two machines which were flying at the military aerodrome. Both machines were smashed, and the pilot of one was killed, while the other, a son of General Kovaguko, was only slightly injured.

Flying from Key West to Havana.

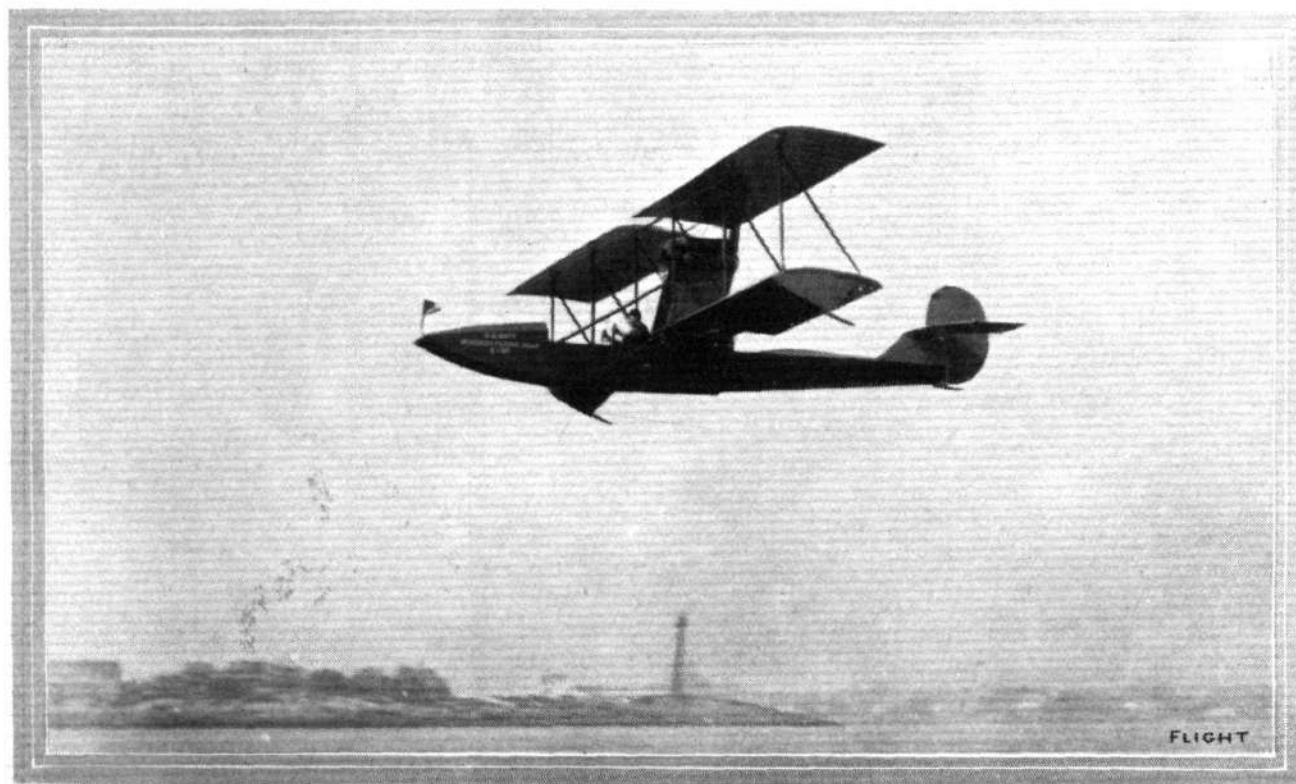
By his splendid flights across the Straits of Florida, from Key West to Havana, on Saturday last, the young Cuban, Domingo Rossilo, secured the prize of £2,000 offered by the Authorities of Havana some years ago for the first aviator to accomplish this feat. His time for the distance, a little over 100 miles, was 1 hr. 52 mins.

Test with New Curtiss Motor.

BENCH tests made at Hammondsport, N.Y., with the latest 100-h.p. 8-cyl. V-type Curtiss motor, which weighs 310 lbs., show that it gives 106.4-h.p. at 1,900 r.p.m., 100.8-h.p. at 1,600 r.p.m., and 95-h.p. at 1,500 r.p.m.

An Argentine Record.

ON his Blériot monoplane at Buenos Ayres, on the 18th inst., Newberry beat the Argentine height record by going up to 4,075 metres.



THE LATEST BURGESS HYDRO-AEROPLANE.—The hydro-aeroplane which has been built by the Burgess Co. to meet the U.S. Navy requirements. It will be noticed that the planes are staggered, and although the upper and lower wing surfaces are permanently attached to each other they can be folded together. The power plant is arranged so that it is easily detachable.

SCIENTIFIC INSTRUMENTS, THEIR DESIGN AND USE IN AERONAUTICS.*

By HORACE DARWIN, M.A., F.R.S.

BEING THE FIRST WILBUR WRIGHT MEMORIAL LECTURE.

"THE chief cause of failure in operation is the ill determination and measurement of the forces and actions of bodies."—*Francis Bacon*.

I have been asked to give the first Wilbur Wright Memorial Lecture. I feel this an honour and a responsibility, and I hope that what I shall say may be of some interest to the many able men now working at the science of aeronautics.

No memorial lecture is required to make us all admire the character of the man, his brilliant engineering work, the scientific method by which he obtained his results. Each step forward was secured by careful reasoning based on former trials; each step was tested separately; all available data were used. An account of the method and results of his original experiments has not yet been published, and would be of extreme interest. May I express a hope, which I know you will share, that when the appropriate time comes it may be published?

All Wilbur Wright's work was done in the closest co-operation with his brother Orville. We do not know how much each did, and we do not want to know; Orville probably says that Wilbur did most, it is equally probable that Wilbur would have said that Orville did most. We, at any rate, know that they together did a very great piece of work.

Natural and Artificial Flight and Locomotion.

The Wright brothers made careful observations of the flight of birds, and found their observations valuable. It is interesting to consider the resemblance and differences of the manufactured aeroplane and the living bird. The resemblance may be simply the result of copying the bird, or it may be that similar designs have been arrived at independently by birds and men. The wings of both are roughly the same shape: of wide span, and narrow in the direction in which the bird flies; both have concave wings with thick leading edges. In many aeroplanes hollow spars are used like bones and like the quills of the feathers of birds. We copy plants also in this respect, for they too have learnt the economy of material in the use of hollow spars. The bodies of airships are similar in shape to the bodies of swimming animals, with the greatest width towards the head. The bodies of birds are of similar form.

These resemblances are remarkable, but there are great differences. The Wright brothers found no biplane bird to copy, and did not flap their wings. No flying animal uses a continuously rotating propeller to drive him forward on soaring wings, and it is perhaps hardly too much to say that if birds only knew how, they would now copy the Wright brothers. Muscular action and the circulation of the blood, however, put supreme difficulties in the way of the development of the continuous rotation of a part of an animal. Cranks and connecting rods, as well as rotating valves to allow the circulation of the blood, would be required. No animal has succeeded in developing wheels instead of legs, although their development might have enabled him to run about with less consumption of fuel, anyhow in a country with good macadam roads. There is a beetle who has made use of something in the nature of a wheel. He collects his food (manure) and carefully fashions it into a ball larger than himself, and then rolls it along to a convenient place, buries it, and lives on it at his leisure. This is not a wheel, but it has many of the advantages of a wheel, and we may consider this beetle as the pioneer transport engineer.

The development of the power of flight in birds has been so slow that we cannot realise the time taken, or form the roughest estimate in years; but the perfection of these adaptations and the beauty of their skill, strength and movement must strike anyone who has ever watched their flight. Some less advanced animals have only learnt to glide, and are now in the same stage of development as the Wrights were a few years ago. Perhaps these gliders developed more slowly or perhaps only began to learn the art many ages after birds had learnt to fly. A few plants also have developed wings to their seeds so that they can glide away to more suitable places for germination and growth.

The evolution of those remarkable flying animals, the Wright Brothers, has been enormously more rapid because it has not depended on the method of trial and error, and because each trial does not correspond with the lifetime of an individual. But the difference is even more far-reaching, since the material on which they worked was knowledge, or, in other words, the experience of mankind handed down from one generation to the next. And more

important still, their mental powers enabled them to test the accuracy of this knowledge and to increase its amount.

It is interesting to note that in the opinion of biologists, birds, bats, fishes and insects all learnt to fly independently; inheritance from a common stock played no part in their development. There are no large flying animals now and the great majority in existence are extremely small. These facts would lead us to expect difficulty in making a very large aeroplane, and theoretical considerations confirm this view.

The Ostrich, the largest existing bird, standing 8 ft. high, has no power of flight; nor had the Moa of New Zealand (now extinct) standing 12 ft. high. It is probable, however, that both had flying ancestors. The only vertebrate animals which developed flight during fossil times were Pterodactyls. The largest of these had a body a little larger than a swan and a span of wings of over 22 ft. This is less than the smallest aeroplane, but large compared to an Albatross, the span of whose wings is over 11 ft.—probably exceeding that of any other bird. The whole family of Pterodactyls have long ago become extinct.

On the other hand there is a very small spider who makes a kind of flying machine out of the simplest materials. In the autumn he desires to emigrate, and as he is very small a land journey would be slow and difficult. He selects a calm and sunny day, on which we should expect to find local upwards currents of air; he climbs to the tip of a blade of grass and spins a thread which is blown out by the wind, and at the right time he lets go and is carried away by the wind, he knows not where. This clearly could not be done by a large animal. But we had better not attempt to copy flying animals too closely. We shall learn nothing from the spider's success in aeronautical engineering. Would it not also be just as great a mistake to try and fly with flapping wings as it would be to propel a ship by a flapping tail like a fish, or to make a motor 'bus trot about the streets on four legs? I think it would, but my ancestor Erasmus Darwin thought differently. In 1781 he wrote:—

Soon shall thy arm, UNCONQUER'D STEAM! afar
Drag the slow barge, or drive the rapid car;
Or, on wide-waving wings expanded bear
The flying-chariot through the fields of air.

A few years ago I did not believe that we should see the essential part of his forecast about flying fulfilled, and I may be just as wrong about the waving wings.

The Design of Scientific Instruments.

The subject of my lecture to-night is Scientific Instruments—their use in connection with flying—and some general considerations with regard to their design. The Wilbur Wright Memorial Lecture will be given annually, and I believe the most useful results will be obtained if the lecturer is allowed considerable latitude in the choice of a subject. All I ask is to be allowed to speak on a subject at which I have worked for many years.

Instruments used in Aeroplanes.

It is important to realise beforehand the difficulties of using instruments on aeroplanes during flight and the errors that may be introduced in the readings. The aeroplane shakes, it does not remain level, and is subject to acceleration in all directions. The instrument should be so designed as not to be affected by any of these disturbances. A vertical acceleration has the same effect as a change in the amount of the downward pull due to gravity, the tilting of the aeroplane changes the direction of the downward pull, with regard to the instrument. A lateral or longitudinal acceleration has the effect of both altering the direction and amount of gravity. But vibration is a greater difficulty still. The hand of an instrument may move so much and so rapidly that it is difficult to estimate the mean reading on the scale, and sometimes it is quite impossible to do so. And this may happen when the quantity, which is indicated by the position of the hand, only varies slowly and by small amounts.

Consider a part of an instrument that can rotate about a vertical axis, and suppose that its centre of gravity is not on the axis, then a sudden lateral movement of the whole instrument will tend to rotate the part relatively to the instrument, the side-ways force will act at the axis, and the resistance of this force due to inertia will act at the centre of gravity of the part. The farther the centre of gravity is from the axis, the greater this tendency to rotate; the tendency will also be greater the greater the mass of the moving part. To make this tendency small, the centre of gravity should

* Read before the Aeronautical Society of Great Britain, May 21st, 1913.

be as nearly as possible on the axis, and the weight should be small. If, however, the part is made very light, it may bend and vibrate in itself from the forces acting on it from its inertia. In fact, the part should be balanced, light, and stiff.

Good balancing and lightness also reduce the tendency to movement due to tilting or want of level in the instrument; if the axis is no longer vertical the centre of gravity will try to get to the lowest point, and the piece will tend to turn.

In a compass as ordinarily made the condition of balance cannot be fulfilled. The magnet rests on a steel point and is horizontal, and its centre of gravity is below the steel point. The force on the North Pole acts in a downward direction towards the North, and

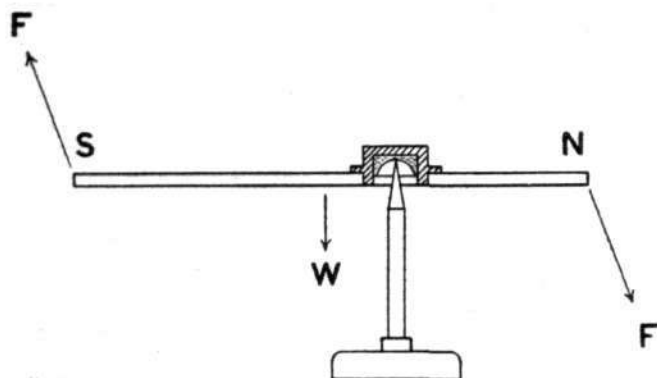


Fig. 1.

the force on the South Pole in an upward direction towards the South, and the magnet is made to rest in a horizontal position by arranging that the centre of gravity of the magnet is between its South end and its centre. It is below and to one side of the point about which rotation takes place. Hence a side-ways movement must start it swinging. (Fig. 1.)

The magnet and card in aeroplane and ship compasses are usually surrounded by a liquid, and then any vibration which may be caused by its want of balance is rapidly reduced.

It is important that instruments on aeroplanes should be damped, using the word to damp in the sense of "to dull" or "to abate the motion of." This damping is specially important if it should happen that the rate of vibration of the whole instrument should agree with the natural rate of vibration of the moving part. When this happens with an undamped instrument, the vibration is excessive. Damping is also important in cases where the fluctuations in the quantity to be measured are rapid; it may then be difficult to read the instrument, and the excursions of the hand may indicate a much greater amount of variation of the quantity than really takes place. If the mean reading is required the instrument must be damped, and the damping should be of a particular kind, which we will now consider.

The essential features of satisfactory damping are that no force should be applied to the moving part whilst it is at rest, but that as

soon as it moves a force should act opposing the movement. Friction at the joints does damp the instrument, but does not fulfil these conditions and is bad. The force should be small when the movement is slow, and it should increase when the movement

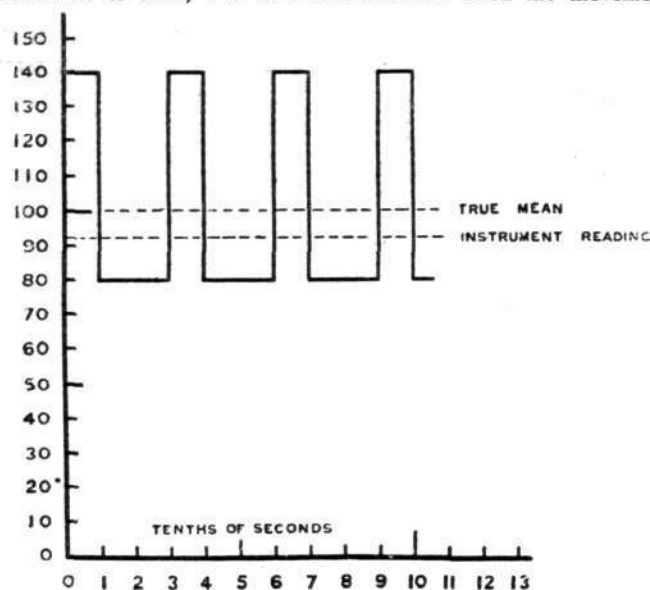


Fig. 2.

becomes more rapid. The most usual method is to immerse the moving part, or a paddle affixed to it, in a liquid more or less viscous, or the paddle can be replaced by a fan in the air. Another method is to damp by the movement of a copper plate between the poles of a magnet. If a Pitot tube is used, the flow of air through the connecting tube damps the instrument.

Mr. A. Mallock has pointed out that in order to obtain a true mean reading with an instrument the damping force should be proportional to the velocity of movement of its index. When the damping force varies as the square of the velocity there may be no error or there may be a considerable error. We will take a particular case. Suppose that the quantity to be measured remains at 80 for $\frac{1}{10}$ second, and then suddenly increases to 140 and remains at that amount for $\frac{1}{10}$ second, and then it goes back to 80 and remains at that amount for $\frac{1}{10}$ second, and that this rapid oscillation goes on indefinitely. Suppose also that the instrument is damped by force which varies as the square of the velocity of the index, and that it is so much damped that the hand appears to remain at rest. The reading of the instrument will be 92 and the true mean in reality is 100, so that we have an error amounting to 8 per cent., by no means a small error. The diagram Fig. 2 gives the supposed variations of the quantity as it would be recorded on a moving sheet of paper, and gives the true mean and the instrument reading.

(To be continued.)

The Royal Flying Corps.

THE following appointments were announced by the Admiralty on the 7th inst.:-

Gunner G. A. J. Blundell, to "Acteon," additional, for course at Naval Flying School, Eastchurch, to date May 6th.

Artificer Engineers F. W. Scarff and G. C. Southron, to "Acteon," additional, for Calshot and Isle of Grain Naval Air Stations respectively, to date May 6th.

The following appointments were announced by the Admiralty on the 15th inst.:-

Lieutenants A. J. Miley and E. Osmond, to the "Hermes," additional, for Flying Course, at the Naval Flying School, Eastchurch, to date June 1st.

Captain A. C. Barnby, R.M.L.I., to the "Hermes," additional for Flying Course, at the Naval Flying School, Eastchurch, to date June 1st.

The following appointment was announced in the *London Gazette* of the 16th inst.:-

R.F.C.—Military Wing. *Special Reserve of Officers.*—The undermentioned to be Second-Lieutenants (on probation). Dated May 17th, 1913: Robert William Rickerby Gill and David Edmund Stodart.

The following appointment was announced by the Admiralty on the 16th inst.:-

Artificer Engineer W. F. Floyd, to "Hermes," additional, for Naval Flying School, Eastchurch, to date May 15th.

The following was announced by the Admiralty on the 17th inst.:-

Mr. R. F. King, R.N.R., to the "President," additional, as

probationary Sub-Lieutenant, for course of instruction at the Central Flying School, to date May 17th.

The following appointments were announced in the *London Gazette* of the 20th inst.:-

R.F.C.—Military Wing.—The undermentioned are appointed to the Reserve. Dated April 17th, 1913:—Capt. William G. H. Salmond, Royal Artillery; Lieut. Ernest F. Unwin, the Army Service Corps; and Lieut. Cecil H. Marks, Reserve of Officers.

A Balloon Trip across London.

ON Monday morning Capt. Penfold and Mr. Henry Spencer started from the Welsh Harp, Hendon, in a new 45,000 c.f. capacity gas balloon with the intention of making a trip to the Continent. When they got away at 2.30 p.m. the wind gave indications of veering from N.W. to W., and striking an altitude of between 1,000 and 2,000 ft. they steered due East across North London. They crossed the Thames at Beckton and as the wind showed signs of slackening it was decided to come down. An easy descent was made at West Tilbury at 4.30 p.m. and in a few minutes the balloon was deflated and packed up ready for its return to London.

Mr. Hucks' Business Address.

MR. B. C. HUCKS has been so inundated with correspondence relating to flying exhibitions during the last two months, that he has found it necessary to take offices at 166, Piccadilly, W., to which address all communications relating to Flying Exhibitions should be addressed.

PRINCE HENRY PRIZE COMPETITION.

UNFORTUNATELY the bad weather rather spoilt proceedings on the opening day of the Prince Henry Competition at Wiesbaden on Saturday week, but nevertheless all the competitors managed to carry out the qualifying flights. There were a dozen military entrants for the whole competition, and eleven private competitors, while Herr Grade was entered *hors concours*. In addition thirteen military aviators had entered for the reconnoitring flights taking place on the last two days.

There were one or two more or less exciting incidents on the first day at Wiesbaden. Hirth made a sudden landing with the Albatross monoplane and his passenger, Lieut. Palmer, was slightly hurt. Lieut. Linke's machine collided with Thelen's biplane, but fortunately with no very serious results. The first stage of the competition was held on Sunday week, the course being from Wiesbaden to Cassel, a distance of 100 kiloms. with a stop at Giessen. Prince Henry of Prussia, with the Grand Dukes of Baden and Hesse, and the Prince of Hohenzollern were present at the start, and Prince Henry followed the aviators in his motor car. Starting from Wiesbaden at 7 o'clock, most of the aviators made the 60 kiloms. journey to Giessen in about half an hour. The remainder of the journey to Cassel had to be made under very unpleasant conditions, there being a strong wind and heavy rain. In spite of this thirteen out of the eighteen starters arrived, and one other, Lieut. Sommer, landed about 10 kiloms. short of his destination. Those who got through were Bluthgen, Canter, von Thuna, von Beaulieu, Kastner, Donnevert, von Haller, von Hiddessen, Joly, Carganico, Thelen, Schlegel, and Suvelack. Lieut. Weyer had a bad smash at Nordenstadt, while Lieut. Vierling's machine was seriously damaged at Massenheim. At a meeting held in the evening it was decided to postpone the start on the following morning for some hours, in the hope that the sun would dry the ground a little, and give the machines a better chance of getting away in good style. Seven machines started between a quarter to eight and half-past nine, and in the afternoon five others started. Lieuts. Sommer and Engwer arrived at Cassel, and the former was among those who went on. Those who completed the 170 kiloms. from Cassel to Coblenz were Thelen, von Beaulieu, von Haller, von Hiddessen, von Thuna,

Canter, Joly, Schlegel, Suvelack and Carganico. The best time was made by Thelen, 1 hr. 42 mins. During the day Lieut. Coerper and Lieut. Zwickau completed the first stage to Cassel and the former got through to Coblenz on the 13th inst., when most of the competitors enjoyed a day's rest. On the 14th inst. 13 machines started for the last stage to Karlsruhe, with *détours* over Worms, Mayence, Frankfurt and Neustadt, representing a total distance of about 316 kiloms. Only 3 machines succeeded in getting through, the pilots being von Hiddessen and Canter, the third being Stiploscheck, who was not taking part in the competition. On the following morning however, Thelen, Schlegel, Carganico, Coerper, and von Beaulieu completed this stage. Of the others, von Thuna was held up at Eckenstein, Kastner at Neustadt, Bluthgen at Bucholz, and Suvelack at Heidelberg. During the 15th there arrived at Karlsruhe



The Prince Henry Prize for flying machines, 1913.



The Trophy presented by Kaiser Wilhelm in connection with the Prince Henry Flight Competition.

five military pilots from Strasburg, one from Munich, four from Metz and one from Mayence, all having entered for the reconnoitring flights on the 16th and 17th.

Fine weather prevailed on the 16th inst., when at about 5 a.m. 22 machines started on the reconnaissance! from Karlsruhe for Strasburg, being escorted for part of the way by the Zeppelin "Sachsen." They had to stop at Pforzheim and 13 succeeded in making the complete journey. On the next day, these pilots started on the last stage—a round trip to Friburg and Neu Brisach and back, and nine of them succeeded in bringing back reports giving the location and strength of some troops which had been posted at various points. At the dinner at Strasburg, on Saturday night, Prince Henry of Prussia handed the Emperor's and Prince Henry's prizes to Lieut. Canter, who used a Rumpler Taube monoplane, and his passenger, Lieut. Bohmer, won the Duke of Baden's prize for the best report. The reliability prize went to Lieut. von Hiddessen, who used a Mars monoplane.



Edited by V. E. JOHNSON, M.A.

Sport v. Science.

WE have received the following communication from Mr. N. V. Brasnett, King's College, Strand, which we publish verbatim, together with some comments, the matters referred to being, in our opinion, of considerable interest and importance:—

"I am fully convinced that all the lessons of any value to the science of aviation that can be learnt from the present twin-screw distance and duration model, whether hand-launched or fitted with an elementary chassis, have been learnt. Its improvement can only be effected on the lines of cutting down weight and of producing propellers more efficient for use with a rubber motor, but of no value as the predecessors of full-size propellers. Even plane shapes can be tested more accurately on a small single-screw model, for these twin-screw machines fly so well with any reasonable plane that it is hard to decide whether any slight increase in distance or stability is due to a new plane or to any chance circumstance.

"This type of model must be abandoned to the toy shops; it has done its work and done it well, and I appeal to all serious model enthusiasts to give it up.

"Surely we wish to have the model recognised by full-sized aeroplane makers as it has not been recognised yet. Whether this will come to pass or not depends upon the leading body in the model world; I refer, of course, to the Kite and Model Aeroplane Association. Hand-launched and r.o.g. duration and distance competitions have become not only useless but harmful to the scientific side of model aviation. They relate purely to the sporting side, and surely this should be a very secondary side in models, whatever may be its position in the full-size world. Why waste money on prizes for machines which are undoubtedly clever, but which are developing into splendid pieces of workmanship which are not models in that they bear no possible relation to full-sized machines?

"Let us rather work on lines which will be of some use to man-carrying aeroplanes, and remember that the model is not the end, but a means to an end. A 100-second flight is of no more value than a 20-second one!

"I am certain that there are many to whom a move of the Kite and Model Aeroplane Association against the present line of development, and for a more useful and scientific one, would be welcome. If such a move is not made, many people will become convinced that model aeroplanes are merely toys, and full-size makers will never recognise their use. In fact, the sins of the 'record breaking' machines will be visited on all models without distinction, and what is now a possible powerful adjunct to the new science will become simply and entirely a child's toy."

Commenting on the above, the view taken by our correspondent is, we think, a somewhat extreme one, but perhaps in a case of this kind such is necessary, or at any rate the most profitable course to take with a view to leading to some useful result. Incidentally, Mr. Brasnett's letter is, or might be, taken to be an attack on the work of the Kite and Model Aeroplane Association to which he specifically refers. Now, the writer does not hold any brief for that or any other society, but this opportunity may perhaps be taken to put certain matters before the readers of FLIGHT relative

to the work of the above with which the writer has been more or less intimately connected.

We do not think that anyone would dispute that the programme of the K. and M.A.A.'s aviation meetings for 1912 was a great advance (even in a scientific sense) on that of 1911. What was the result? Save in the two hydro-aeroplane competitions, what may be termed the more scientific contests were very poorly patronised indeed. In the steering competition for r.o.g. machines (if we remember correctly) scarcely half a dozen competitors entered; the single-screw tractor competition attracted only a few, and so on. For about the last eighteen months the society has been endeavouring to obtain a small sum of £10 in order to assist in the carrying out of some research work of a strictly scientific character; up to a fortnight ago, at any rate, the money had not been forthcoming. If, then, competitors will not enter, and subscribers and donors will not give prizes for competitions which (from our correspondent's point of view) are strictly scientific, and since competitions cannot be held without them, then the K. and M.A.A. has no choice in the matter.

We should only be too glad to think with Mr. Brasnett that there are many to whom a move along more scientific lines would be welcome, but the writer has perforce had to come to the conclusion that amongst every 100 interested in model aviation, 93 per cent. are for sport and but 7 per cent. for science. If this is incorrect, then all we can say is that the "scientifics" do not come forward as competitors, which is exactly what they must do if they really wish the scientific side to be recognised. Neither talking nor writing will accomplish the end they have in view; but if at a competition of a purely scientific character 50 competitors turned up, such an event would do more to further the cause of scientific model aviation than all the writing and criticism in the world. Until they do this, we are afraid matters will remain very much as they are.

Challenge Trophies and Gold Medals.

The following paragraph is in reality but continuous of the foregoing: When model aviation first became popular a few years ago, the two chief prizes offered for competition (apart from monetary ones) were challenge trophies usually accompanied by a medal, which latter the winner retained. You cannot have a competition of any kind unless it be accompanied by certain rules for the carrying out of the same. Now in a subject like model aviation, which, like its full-sized prototype, has made enormous strides in the last few years, not only may the rules originally drawn up require revision, but the whole idea with which the trophy was offered may become, practically speaking, more or less obsolete, and the actual competitions for the same cease in succeeding years to do anything to advance the art; not only so, but matters might become so changed as to go further than this and become actually a drag or hindrance to further progress. It is only fair to add that the donors of such challenge trophies have, generally speaking, been quite agreeable to the rules of the competitions being brought up to date as far as possible, but when everything is done in this way that can be done, the nature of the original competition must remain.

The K. and M.A.A. is certainly blessed with a plethora of such

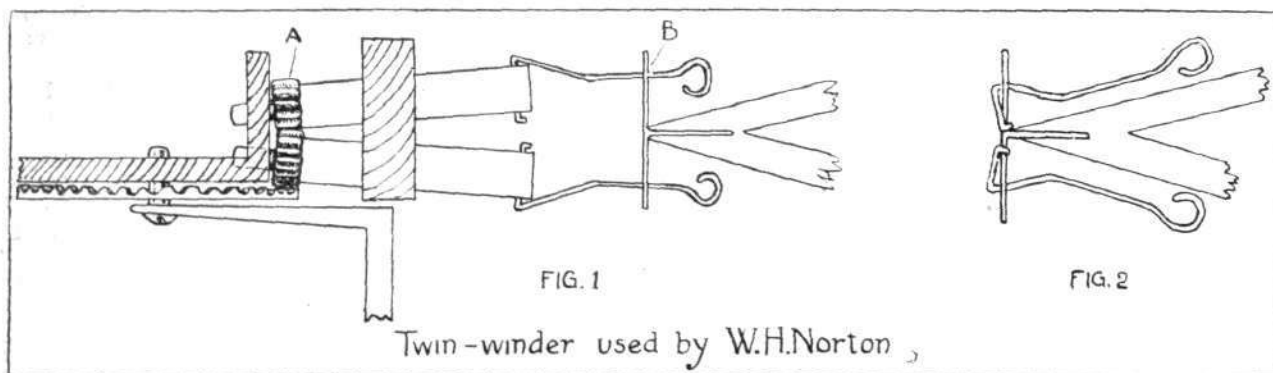


Fig. 1 is a top view of the winder showing method of attachment of rubber hooks, also position of hooks when winding. Fig. 2 shows position of hooks with elastic wound, locked over bearing by torque of elastic. A shows two pinion wheels taken from eggbeater, worked by right-angle cog from same. B shows the brass bearings on the nose of the model turned at right angles and inserted between the longitudinals.



Mr. M. B. Ross's Olympia model.

trophies, and the scientific nature of its competitions is not unduly assisted by such. In its competitions, up to the coming season, a gold medal could be won for a hand-launched machine for merely the longest distance flown, and also another for longest distance and stability (hand launched and r.o.g.), minimum weight of the foregoing 4-oz.; in addition to these a gold medal was also awarded for an r.o.g. machine (duration and stability) for a model of 8 ozs. minimum. This year the two first-named competitions are for r.o.g. machines only, all hand-launched machines being relegated to junior competitions.

Personally, the writer would like to see the gold medals removed from all the above, from the sporting side of the question altogether,

further award than the kudos gained, yet how many firms might with considerable profit to themselves set up a research laboratory on model lines.

Model Club for Ecclesall and District.

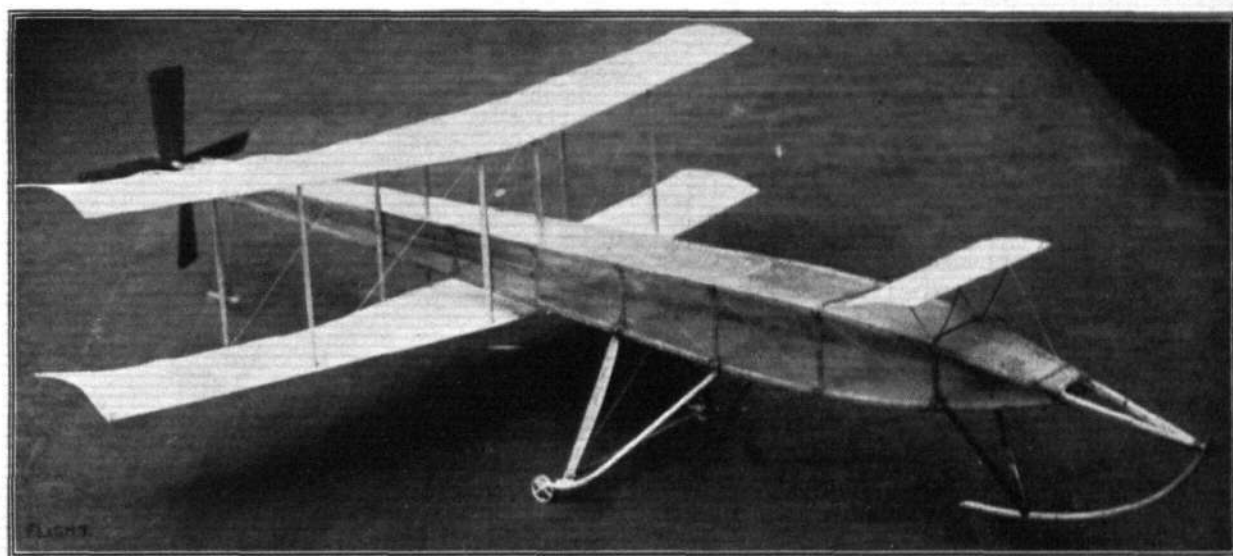
Mr. J. H. Jude (50, Crescent Road, Sheffield) writes, saying: "A model club under the above title has recently been formed in this district, and is in a sound position financially. It possesses a man-carrying biplane glider very near completion; but in order that the club may be a success during the coming season it requires more members, and I should be very glad for anyone in the Sheffield district who is interested in model aviation to communicate with me at the above address. The following prizes have been offered for competition among members: Mr. M. Kavanagh, a silver cup and two medals; Mr. G. Woolhouse, a bronze aviation figure; Mr. A. Atkinson, a silver medal, besides others in view, so that there is no lack of prizes."

Mr. W. H. Norton's Twin-Winding System.

We give this week an illustration of the particular type of twin-winder used by the above, who says in his communication: "Seeing your illustration of Mr. Houlberg's system in a recent issue of FLIGHT (April 26th), I thought I would send you an illustration of a system which I have used ever since I took up model aeroplaning. I may say I am a firm believer in this system, as the advantages are so obvious. Possibly the reason it has not been more generally taken up is that it is a little more trouble in construction, but I think the advantages more than compensate for any little additional trouble required."

Mr. M. B. Ross's Olympia Model.

The following are the chief particulars of this model, which exhibits several very interesting points in design and construction: Span, 30 ins.; average chord, 5 ins.; weight, 12½ ozs.; area of supporting surface, 286 sq. ins.; loading, 8 ozs. per sq. ft. Non-lifting tail, but the top surface is cambered. Both the planes, tail, &c., are double-surfaced. The four struts supporting the planes are of streamline form. The four-bladed propeller has a diameter of



Mr. G. Rowland's Olympia model.

and the founding and awarding of a gold medal and a prize of ten pounds yearly for the best piece of model research work done during the year. Such an award would have in course of time a very high value, and would undoubtedly (when aviation becomes more established) be keenly competed for. Unless something of this kind is done, the views put forth by Mr. Brasnett will undoubtedly come to pass, and we shall have model aeroplaning, like model locomotives, &c., degenerating into nothing more nor less than "splendid pieces of workmanship."

It is a lamentable fact that, so far as model work generally in this country is concerned, no prizes or awards (so far as the writer knows) are offered for experimental or research work; by model, I refer to any kind or type of model, not solely to an aeronautical one. At the present time any such work must be carried out by individual effort often at considerable personal expense, and without any

10 ins. and a pitch of 17 ins. The motor consists of two skeins of rubber on a H section detachable motor-rod. The skid is of ash T section, with dished wooden wheels. The elevation is adjusted by sliding the fuselage along through four bearings attached to the two centre compression-struts and the extended portions of the skids.

Some Good Flights with a Steam-Driven Biplane.

Mr. H. H. Groves, writing of his Olympia biplane model (illustrated in a recent issue), says: "I just send you a line to let you know that this model has, after several mishaps, at length justified its existence. On Bank Holiday last, I was successful in getting three really very successful flights out of it: the first of some 600 yards, at an altitude of about 40 ft.; a second, circles to the left and about 30 secs. duration; and a third flight, consisting of a large circle to the left, at a height of about 35 ft., which terminated

by the model hitting a tree and landing in a heap. The only damage done, however, was a broken propeller and one outrigger span cracked, and this from about a 30 ft. fall. The distance of this flight (along the line of flight) was approximately a quarter of a mile." A snapshot of the model high up accompanies the communication; it is, however, not quite clear enough to bear reproduction, owing to the lens being accidentally set at 5 metres focus instead of infinity.

Replies in Brief.

LIVERPOOL A.—So far as we can judge from your sketch, a very similar idea was used on one of the full-sized machines at Monaco with, at any rate, some degree of success. The chief trouble is not so much a more or less pancake landing on the water, as when the machine lands at two steep an angle or alights in the trough of a wave, either of which will immerse the nose of the float and tend to either break the same clean away or cause the machine to turn over forwards in exactly the same manner as if a cyclist were suddenly to apply a powerful break on his front wheel.

C. F. FEARN.—In order that the trailing edge of the float of a hydro-aeroplane shall tend to quit the surface of the water and not cling to it or be sucked down as it were by it, it is absolutely essential that the trailing edge and the rear under part of the float be not formed as you suggest, but with a straight or even slightly dipping edge; on no account must a turned-up one be used. Try the experiment yourself, and note the result; the disturbance is mainly caused because the floats are set at too great an angle of incidence.



KITE AND MODEL AEROPLANE ASSOCIATION.

Official Notices.

British Model Records.

Hand-launched ...	{ Distance ...	A. E. Woollard ...	477 yards.
	{ Duration ...	A. F. Houlberg ...	89 secs.
Off ground ...	{ Distance ...	G. Rowlands ...	232 yards.
	{ Duration ...	A. F. Houlberg ...	51 secs.
Hydro, off water ...	{ Duration ...	F. Whitworth ...	37 secs.
Single-tractor screw, hand-launched ...	{ Distance ...	F. G. Hindsley ...	173 yards.
	{ Duration ...	J. E. Louch ...	44 secs.
Do., off ground ...	{ Duration ...	J. E. Louch ...	40 secs.

Affiliation.—The applications of the Leytonstone and District Aero Club, the North-East London Model Aero Club and the Wimbledon and District Model Aero Club to be affiliated were granted by the Council, on Friday, 16th inst. It is hoped that within a short time all the various clubs will become affiliated.

Empire Day Competition and Display.—This afternoon (Saturday) the Association will start their competition season by holding its first kite competition for prizes presented by Messrs. Brooke and Westhorp (the Brookite firm). It will be held at Park Royal, instead of at Wimbledon Common. The alteration is due to the fact that an "Empire Day Carnival" has been arranged, and the programme is as follows:—2.30, the arrival of aviators from Hendon; 3.0, kite competition and model display, with a scratch contest r.o.g. models; 4.0, balloon ascent, with parachute descent, followed by a scouts' rally, &c., with short speech on patriotism. Admission to the grounds, 6d., 1s. and 2s. Travel by District Railway.

Official Trials.—The official trials for this month will be held on Wimbledon Common, on Saturday, May 31, on the Plain, Wimbledon side of windmill, at 3 o'clock. Applications should be sent in at once on forms to be had on application.

Model Engineer Competition.—This competition will be held on Wimbledon Common, on Saturday, June 7th, at 3 o'clock. Entries close first post May 31st. *Model Engineer* duration competition for models, rising off the ground (open to the world). Free to members; non-members' entrance fee, 2s. Previous holders: E. W. Twining, Esq., 1911; Cyril Ridley, Esq., 1912. Prizes: 1st, challenge cup and silver medal, presented by editor of the *Model Engineer*; 2nd, silver medal of the Association; 3rd, bronze medal of the Association.

RULES.—1. Competitors may submit models of any kind. 2. Models must not weigh less than 4 ozs. 3. Competitors must be at the judges' flag at 2.30 o'clock. Those not present at that time will be disqualified. 4. Models to be timed from time of starting to time of landing, or till they disappear from the observer's view. 5. Models must rise from ground under own power. 6. Each competitor is entitled to three trials if time permits.

Subscriptions.—All members are requested to forward their subscriptions at once, as early payment greatly facilitates the work of the Association. All intending competitors should send their subscriptions with entry, if not already paid.

27, Victory Road, Wimbledon, S.W. W. H. AKEHURST, Hon. Sec.

AFFILIATED MODEL CLUBS.

Hendon and Districts Model Ae.C. (3, ARGYLE RD., W. HENDON)

MAY 25th, Cricklewood ground, 3 p.m. Duration (r.o.g.) competition (weather permitting). Tractors' durations increased by 50 per cent. Three cash prizes.

N.E. London Model Ae.C. (57, KING SQ., GOSWELL RD., E.C.)

FLYING as usual on Hackney Marshes, at 3 p.m. on Saturdays. This is the late Hackney and District Aero Club re-named. Those wishing to join should at once communicate with the sec.

Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).

MAY 24th.—Members take part in the model aeroplane display held under the auspices of the K. and M.A.A. at Park Royal. May 31st.—Trials for certificates on the temporary ground kindly provided by the owner of the usual ground, until grass is cut, end of June.

Wimbledon and District Model Aero Club (59B, ST. PHILLIPS ROAD, LAVENDER HILL, S.W.)

This club is now affiliated to the Kite and Model Aeroplane Association. Flying on Wimbledon Common:—Saturday, 2.30; Sunday, 11.0 and 3.0.

UNAFFILIATED MODEL CLUB DIARY AND REPORTS.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

Sheffield Model Aero Club (35, PENRHYN ROAD, SHEFFIELD).

MAY 26th, general meeting, 7.30 p.m., at Club Room, 32, Carver Street.

S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCKLEY).

MAY 24th, flying at Grove Park, 5.30 to 8.30 p.m.; May 25th, at Blackheath, 8 a.m. to 10.30 a.m. (where special attendance is requested). Other flying at Mitcham, Brockley and Woolwich Common as usual.



CORRESPONDENCE.

A Model Aeroplane Meeting.

[1759] It is proposed to hold an international model aeroplane meeting this summer under the auspices of the Kite and Model Aeroplane Association, which is, by agreement with the Royal Aero Club, recognised as the paramount body to govern models in this country. About £200 is required in order that substantial prizes may be offered to encourage foreign competitors and to foster the home industry. Lord Montagu has already offered a handsome trophy for engine-driven models, and other competitions will be held for waterplanes and rubber-driven machines. It may not be generally known that there are upwards of forty model clubs in England and Scotland, and that there is a growing industry which is entirely devoted to their needs. Kite and model flying is by no means simply a sport or pastime; it has become a science fraught with great possibilities for the development of machines for military and other purposes. Furthermore, it forms an educational medium of the very highest value. As president of this association I therefore appeal to those who have the development of aeronautics at heart to contribute towards the funds needed. Donations, large and small, will be gratefully acknowledged by the hon. secretary, the Kite and Model Aeroplane Association, 27, Victory Road, Wimbledon. Cheques should be crossed International Prize Fund. It is hoped that the general public may support us in making the first international meeting to be held in this country an unqualified success.

J. C. SHELLEY, Bart.,

President, the Kite and Model Aeroplane Association.



Alresford, Hants.

Wood for Modellists.

IN the reference which was made in the Model Section last week to the timber supplied by Messrs. W. G. Evans & Sons, no address was mentioned. It should be noted that this is 1, Williams Mews, Stanhope Street, Euston Road, N.W.



Aeronautical Patents Published.

Applied for in 1912.

Published May 22nd, 1913.

9,958.	M. MIEGE. Aeroplanes.
10,714.	L. DOBBERTIN. Flying machines.
17,240.	J. SCHWINGELER. Aircraft garages.
26,266.	SOC. DITE. AEROPLANES MORANE-SAULNIER. Landing chassis for aeroplanes.
26,304.	R. SOMMER. Controlling longitudinal stability.
28,964.	B. VON BULTZINGLOWEN. Flying apparatus.
Applied for in 1913.	
Published May 22nd, 1913.	
295.	L. O. SCHOPP. Aerial vehicle stabilisers.
5,061.	LUFTSCHIFFSANTRIEB-GES. Sheds for aircraft.

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